Railway Age

Vol. 80 February 27, 1926 No. 9

Co-ordinated Transportation on the Boston & Maine

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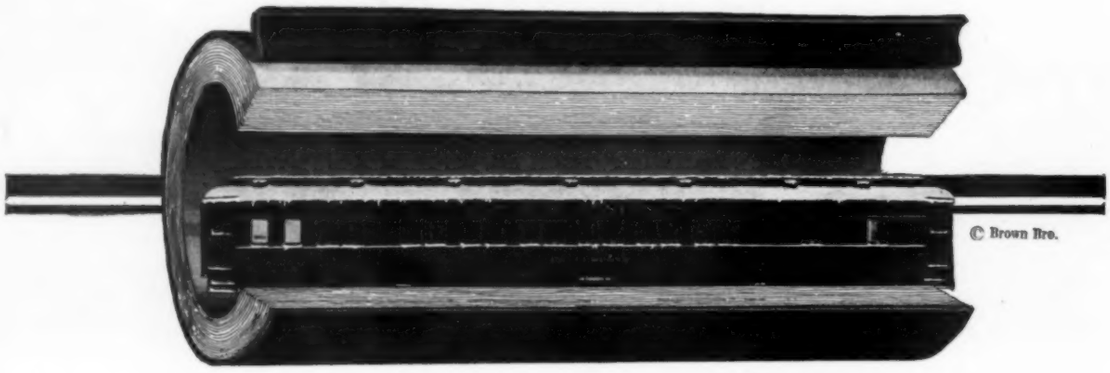

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Railway Age

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Motor Transport Section

IN this issue the *Railway Age* begins the publication of a monthly Motor Transport Section. This will supplement and not replace the material the *Railway Age* publishes on the other railway subjects with which it has dealt in the past; it will appear in the fourth issue of each month. In it will be included articles dealing with the subject of motor transportation, both bus and truck, as it concerns the railways, in which the aim will be to answer the important questions which now confront railway officers in the determination of how and to what extent the railways should make use of the motor bus and truck. There will be descriptions of the ways in which a number of the railways are now adapting the bus and truck to their service, and other subjects relating to the betterment of freight and passenger service, to reducing the cost of providing such service, and to the general coordination of railway and highway transportation. It is hoped that this motor transport section will be of assistance to railway executives and other officers who are facing the many-sided problem of what use they can and should make of motor vehicles.

Regional Appointments to I. C. C.

SENATORS who have been working on a bill to require regional appointments to the Interstate Commerce Commission have been having a great time trying to divide the country into groups of states for that purpose. The original bill introduced by Senator Smith of South Carolina provided for twelve commissioners and a grouping which not only omitted some states but bore some strange ear-marks of a gerrymander for particular purposes. Then the bill was revamped by a sub-committee to provide for six geographical divisions, each to have two commissioners, although the population of the groups ranged from 7,000,000 to 30,000,000 and the mileage of railways in the groups likewise varied widely, and although senators from some of the states included in the proposed groups are complaining now when their groups already have three commissioners. Senator Trammell of Florida then introduced a bill providing for eleven groups and one commissioner at large. The Senate committee on interstate commerce has now reported out the Smith bill with amendments providing for 13 commissioners and seven groups, creating a new Pacific group by omitting Washington, Oregon and California from the Mountain group, and giving the Pacific and New England groups only one commissioner each, while the Lake group, which comprises eleven states, is given three. The Pacific and Mountain groups combined, having 20 senators, are given three commissioners between them for a population of about 8,500,000, as against three for the Lake group, which has a population of 28,000,000 but only 22 senators; the Middle Atlantic group, with 30,000,000 population and 14 senators, would have no more commissioners than the South Atlantic group, with 14,000,000 people and the same number of senators, or the Gulf group with 17,000,000 and 16 senators. Apparently some of the senators have over-reached themselves and the fact is likely to be speedily noticed in the House, where the more populous states have more votes.

Electric Locomotive Classification

A NEW system for classifying electric locomotives, called the "Standard" system, is proposed in an article elsewhere in this issue. It has the advantage of simplicity and permits certain designations which are not possible with the Whyte system now in general use. For example, an "0-4-0" locomotive under the new system is classified by the single letter "B" and a "2—4+4—2+2—4+4—2" locomotive is designated by the symbol "2 (1—B+B—1)." The new system also provides for special cases when guiding and driving wheels are included in the same wheelbase. Manufacturers of electric locomotives in this country have tentatively accepted the new system and it is used quite commonly in Europe. Unlike the adoption of the metric system of measurement, which would require the changing of many jigs, dies, etc., the proposed locomotive classification system requires only that records, text books and magazines adopt a separate designation for electric locomotives. This depends on the willingness of those who use the records and magazines, to use it, and on the persistence of the manufacturers in exploiting it. There are apparently good reasons for the introduction of the system and if the manufacturers use it consistently in their literature, it is not at all unlikely that the "Standard" system for electric locomotive classification will in time receive general recognition.

Modernizing Small Engine Terminals

THE expenditure of approximately $10,000 for the installation of modern mechanical coal and ash handling equipment made it possible to reduce the labor force at a small outlying engine terminal on a certain road to one man on each shift where three or four had formerly been employed. Handling coal and ashes by manual labor is not only an expensive process but often has an important bearing on the ability to maintain an adequate labor force at many points in outlying districts. This particular installation not only contributed to greater ease in turning power at that point but the savings effected will return the investment in a comparatively short period. The results of this one change led to the preparation of a definite program for the modernization of small terminals on that road. When it is considered that over 50 per cent of all the engine terminals in this country are those with engine

houses of five stalls or less and handling comparatively few locomotives each day it seems possible that mechanical officers may be overlooking a real opportunity to effect substantial economies in locomotive handling costs. While it is true that the large, important terminals demand the most attention and the greatest portion of the annual appropriation for improvements it is also true that because the small terminal may receive the least attention, wasteful practices are often disregarded which, in the aggregate, are sources of enormous loss. An intelligent study of the small terminal problem may reveal many ways of making time and labor saving changes which, if made now, will result in economies that will eventually make a still greater portion of the appropriation available for improvements at the large terminals.

A Measure of Train Control Performance Is Needed

WITH more than 27 of the 45 train control installations required under the first order now in service the question of securing comparative records of performance and operation on different roads should be considered. Some roads have no system for recording failures of train control equipment, while most of those that have, report the failures of train control on locomotives separately from the wayside failures. Such reports may be used for a comparison of performance from month to month on an individual road, but in order to afford a better comparison between different roads factors such as engine mileage and the number of locomotives passing each potential stop location should also be considered, for two roads may have the same number of locomotives equipped but one may have more signal locations in the same mileage than another. One possible measure of performance would be engine-location movements, counting every time any engine passes any location as one unit. Confining the discussion to train stop systems, each signal location would be a "location," providing a track unit is operating in conjunction with its indication. A track unit in this case would be a ramp, a track inductor or, in case of the continuous type, the track circuit from the braking point to the signal; in other words, potential stopping points under normal operation. The total mileage per locomotive, especially where operated extensively off of train control territory, will also be of value. Recent reports of train stop installations on roads having a year or more experience with the apparatus indicate a decided increase in the number of failures in some cases. It would therefore be a service to many roads individually, and to all collectively, if the Interstate Commerce Commission could devise some uniform measure of performance of train stop and train control equipment.

Safety, Absolute and Relative

"SAFETY above everything else" was the reply of a well-known railroad president when a subordinate asked him to name the most important of the varied objects that must be aimed at in the operation of a great railroad. That the term "Safety First" is a misnomer, is one of the outstanding statements in a paper by Z. B. Claypool, safety superintendent of the St. Louis-San Francisco, printed in another column of this paper. In view of the great amount of practical good that has been done by innumerable safety-first committees on American railroads, it may be worth while to stop a moment and look behind these different expressions. Honesty and integrity must be first, says Mr. Claypool. Evidently his idea is about the same that has been expressed by others as "duty first." This brings his view pretty nearly in accord with the other one. Safety above everything else is the carrier's duty to the passenger. Yet we fall short of it, theoretically, when we run midnight passenger trains at a mile a minute through thousands of miles of wilderness, for murderous train wreckers who do not hesitate to kill a hundred passengers are still at large. And we fall short practically, also; for the train wrecker actually gets in his work now and then. "Safety above all else" would limit passenger travel to moderate speeds and (on many lines) to daylight hours. A prominent ocean-steamship manager once said that, in spite of his company's best efforts, passengers did sometimes suffer bodily injury. A railroad has to say the same, if 100 per cent accuracy of statement be aimed at. The wreck of a freight train by a defective axle sometimes blocks four main tracks within a space of a half minute. The fatal wrecking of a passenger train by such a blockade is always a possibility and may any day be a reality. Probably Mr. Richards, the father of "safety first" in the American railroad world, if alive today, would very quickly make our two phrases consistent, one with the other, by nailing to the mast-head what in substance he taught—

SAFETY BEFORE HASTE

(Of course, if a man is so dull or so lazy that "haste" is not appropriate in his case, "safety first" is the highest appeal that can be employed). Mr. Claypool would have "accident prevention" instead of "safety first"; but still we should be left in uncertainty, for there is no basis of measurement. Nobody knows how many accidents are prevented; perhaps none at all. In trying to calculate in this field we are about as scientific as the boy who reasoned that pins had saved the lives of thousands of people, because they hadn't swallowed them. "Accident prevention" is a back-handed phrase which is meant to be equivalent to "perfect operation accomplished." We would add to Mr. Claypool's "honesty and integrity" the obvious essentials of capability and industrious devotion to duty. These qualities assured, we may be confident that the rendering of Mr. Richards' slogan which we have given above would be wholly satisfactory to the manager who prescribes "Safety Above Everything Else." Slogans have to do, not with academic or logical perfection, but with the motives and purposes of human beings. The faithful railroader aims constantly at perfection, although he may never get there.

Good Light Is Not Expensive

IT is not difficult to prove that good light is one of the cheapest servants employed in a railroad shop. Good day-lighting conditions are obtained by proper design of buildings; sometimes with the assistance of artificial light. Good night-lighting is, of course, obtained with artificial light and because lighting installations and electric current cost money, it is natural to try to get along with a minimum. The fallacy of this tendency is not always apparent, even though it is known that proper light means increased production, reduced spoilage and less accidents. Installations of good lighting systems in industrial plants have repeatedly resulted in an increase of 10 per cent in production and sometimes over 30 per cent. In these cases the increase in cost of lighting has ordinarily not amounted to more than one-fifth of the saving effected by the increased production. By far the greater number of accidents in the shops occur during the winter months when artificial light must be used over longer periods than in the summer and it practically goes without saying that poor visibility is largely responsible for this increase.

Many railroad shops are well lighted, but on the average they do not compare well with industrial plants. The reasons for this probably are that the relation between lighting and production is not so easy to measure and because there are many places in which it is difficult to install a good lighting system. Furthermore, dirt and in some cases smoke make the conditions more difficult. In spite of these difficulties, however, it is doubtful if in any case inadequate lighting is economical.

Apologies for Prosperity

THE railways were chided a few days ago by a special writer for a Chicago newspaper who frowned upon their "apologies" for their comparatively good record of earnings in 1925. The railways are entitled to as much and more than they earned last year, said this writer, so why should they be apologetic in speaking of their record? The point appears on the surface to be well taken, but it is not. It is axiomatic that a man is entitled to a reward for his efforts; similarly that a company is entitled to a reward for its efforts. But circumstances alter cases. The automobile industry can make money; so can other industries, storekeepers and butchers and almost anyone else, and there is no complaint. But such is not the case with the railways. Statements of good earnings of the average industrial concern are noted by the public with admiration and occasionally envy. Statements of good earnings of an average railroad, however, are not viewed by the public with envy. The feeling in this instance is one of suspicion which immediately breeds a desire to lower the earnings by forcing lower prices for transportation. Why this highly unfair situation should be permitted to exist is a puzzle. The obvious reasons are too well known and too numerous to repeat here. But exist the situation does, and it cannot be disregarded. That is why the railways are "apologizing" for their profits, too small though they are, and they must continue to "apologize" for making a little money until shippers wake up to the fact that a railway earnings statement printed in black is not the recognized signal for an attack on railway rates.

Educating Passenger Trainmen to Talk

ALL over the country today we hear of passenger trainmen, ticket sellers, porters and other railroad employees whose intelligent devotion to their duties gives pleasing evidence that they have competent knowledge of their jobs and can sincerely serve passengers in a way to elicit their outspoken commendation. Not the least of the benefits derived from the employees' magazines, now published by many railroads, is the opportunity afforded in their columns to print letters received from grateful passengers commending individual employees by name.

Side by side with this pleasing picture we have the conduct of innumerable "average" employees who are not so accomplished. The letter from "Fort Orange," printed in another column, reminds us that the disciplining of passenger trainmen up to a standard where they will give to patrons ideal service under unfavorable or trying conditions is a very considerable problem. Our correspondent's idea is that the really satisfactory men in this branch of the service are those who have a good deal of native talent for those duties. Taking any force of men as a whole, an immense amount of training is necessary.

With no disrespect to General Atterbury or to Mr. Statler, one may agree with "Fort Orange" that printed advertisements do not wholly cover the ground. For extra good men, like the Vermonter, the aggressive trainmaster thanks God and takes courage; but he does not find such men very frequently among the individuals who come to him for jobs; and to build up a force of men who will quickly respond to a Statler-style hint, he must spend innumerable days and nights in teaching, advising and encouraging, and now and then reprimanding.

The trainman ambitious to perfect himself must practice the art of pleasing persons; not that vague entity "the public" but the individual passenger. Pick out one man (or woman) and tell him (or her) all about the delay to your train. Having clearly satisfied one passenger, *then* shout it out for the benefit of the rest! A public speaker is not a success unless he gets his words well into the ears of that part of the audience that sits in the back seats. The announcer in a passenger car is a public speaker. He should satisfy the timid woman or the inexperienced foreigner as well as the aggressive American who asks questions.

Anyone who has observed the clumsy, half-hearted, ineffective way in which the great majority of trainmen make any announcement which is at all out of the ordinary, will agree that something in the nature of heroic treatment is necessary. If you desire to begin on a detail, try your conductors in the matter of *promptness* in giving to passengers the information that they are waiting for. A delay of a half-hour may be a considerable annoyance, or possibly discomfort, to many passengers; and if the conductor takes 25 minutes to decide whether or not it is necessary to say anything at all, those passengers will continue to harbor an uncomfortable feeling for an indefinite length of time. Some ingenious trainmaster ought to bribe a lot of passengers to pester a lazy train crew; to annoy them sufficiently to stimulate discussion in the conductors' room at the terminal. Conductors of through trains who do not do their best, ought to be put on suburban trains for a season, where passengers who are past masters at finding fault may be found on every train.

Net Earnings Under Transportation Act

STATISTICS just made available for 1925 make it possible to compare the net railway operating income actually earned by the railways with the fair return contemplated by the Transportation Act and the decisions of the Interstate Commerce Commission for a period of five years and four months since the expiration of the government guaranty to the railways on August 31, 1920. The net for 1925, $1,136,984,000, although it amounted to only 4.83 per cent on their property investment, was 5.63 per cent on the tentative valuation adopted by the commission in the 1920 rate case, adjusted to include the additional investment made in succeeding years. On this basis it was only 97.9 per cent of a fair return, which would have been $1,160,810,000, although it was the largest ever earned by the railways in any year. The net railway operating income of the Class I roads and large switching and terminal companies for the 64 months period is given in the accompanying table for the United States, and by districts, in comparison with the amounts which should have been received to give a fair return on the tentative valuation basis, and a similar comparison is given for the total by years.

For the first two years after the law became effective, that is, until March 1, 1922, the fair return was established at 6 per cent annually. Since that time it has been 5¾

per cent by the decision of the commission in the 1922 rate case. A fair return for the 64 months period would have been $5,996,606,000. The net railway operating income actually earned for that period has been $4,720,849,000, an average return of 4.58 per cent, or only 78.7 per cent of what it should have been and $1,275,757,000 less than the fair return to which they were entitled.

NET RAILWAY OPERATING INCOME, "FAIR RETURN," AND SHORTAGE BELOW "FAIR RETURN"

CLASS 1 RAILWAYS, INCLUDING LARGE SWITCHING AND TERMINAL COMPANIES
64 Months, from September 1, 1920, to December 31, 1925.

District	Net railway operating income	Average annual rate of return *a*	"Fair Return" *b*	Shortage below fair return	Per cent of fair earned
Eastern *c*	$2,209,426,000	4.72%	$2,722,164,000	$512,738,000	81.2
Southern *d*	620,470,000	5.12	705,179,000	84,709,000	88.0
Western	1,890,953,000	4.28	2,569,263,000	678,310,000	73.6
United States .	$4,720,849,000	4.58	$5,996,606,000	$1,275,757,000	78.7

DETAIL BY YEARS—CLASS I RAILWAYS, UNITED STATES

Last 4 mos., 1920	$220,584,000	*e* 3.11%	$425,996,000	$205,412,000	51.8%
Year 1921.....	615,946,000	3.33	1,108,297,000	492,351,000	55.6
1922.....	776,881,000	4.14	1,085,679,000	308,798,000	71.6
1923.....	983,736,000	5.22	1,082,643,000	98,907,000	90.9
1924.....	986,718,000	5.01	1,133,181,000	146,463,000	87.1
1925.....	1,136,984,000	5.63	1,160,810,000	23,826,000	97.9
Total.....	$4,720,849,000	4.58	$5,996,606,000	$1,275,757,000	78.7

a Rate of return on tentative valuation.
b Fair return on tentative valuation: fair return was established at 6% annually from March 1, 1920, to March 1, 1922, then reduced to 5.75%. Simple average for 1922 is 5.79%.
c Includes Pocahontas Region.
d Excludes Pocahontas Region.
e Represents rate of return earned on an annual basis.

The Southern roads in the 64 months period have approached nearer to the fair return basis than the roads of the other districts but their net railway operating income of $620,470,000, which was 5.12 per cent on the tentative valuation as adjusted, was only 88 per cent of the fair return which they should have received, a deficiency of $84,709,000. The Eastern roads, with a net of $2,209,426,000, or 4.72 per cent, earned 81.2 per cent of a fair return, a deficiency of $512,738,000. The Western roads, with a total net of $1,890,953,000 for the period, or 4.28 per cent on the tentative valuation, received only 73.6 per cent of a fair return, falling short of that amount by $678,310,000.

In the last four months of 1920 the railways of the United States earned at the rate of only 3.11 per cent on an annual basis, or 51.8 per cent of a fair return. In 1921 the net actually earned was only 55.6 per cent of a fair return, a shortage of $492,351,000. In 1922 the roads earned 71.6 per cent of the fair return. In 1923, the year in which operating revenues were the largest on record, they earned 90.9 per cent of a fair return; in 1924, 87.1 per cent, and in 1925, 97.9 per cent, a deficiency of $23,826,000. The total deficiency for 64 months, $1,275,757,000, is more than the fair return for an entire year.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

A Century of Transportation Problems, by Clyde B. Aitchison. The Commissioner's address to National Asso. of Railroad and Util. Commissioners. Available in two forms. 15 p. Pub. by Natl. Asso. of RR. and Util. Com'rs., Washington, D. C., and 12 p. Pub. as Senate Doc. no. 62, 69th Cong. 1st sess., by Govt. Print. Off., Washington, D. C., the latter 5 cents.

Illinois Central Magazine, Feb. 1926. Diamond jubilee issue containing illustrated articles on the history of the Illinois Central. 96 p. Pub. by Illinois Central System, Chicago, Ill.

Reports Required of Railroads and Utilities Companies. Report, by U. S. Interstate Commerce Commission. This report, noted last week, has now been issued as Senate Doc. no. 64, 69th Cong., 1st sess. 24 p. Pub. by Govt. Print. Off., Washington, D. C. 5 cents.

A Review of Railway Operations in 1925, by Dr. Julius H. Parmelee. Reprinted by permission from *Railway Age* of Jan. 2, 1926, and figures revised to Feb. 10, 1926. Miscellaneous series bulletin no. 38. 32 p. Pub. by Bureau of Railway Economics, Washington, D. C. Apply.

Tentative Report on Program, by Daniel Guggenheim Fund for the Promotion of Aeronautics. Pamphlet no. 2 stating organization of research, educational proposals, etc. 19 p. Pub. by the Fund, New York City.

Periodical Articles

Progress and Poverty in Current Literature on Valuation, by James C. Bonbright. Reviews of books by Bauer, Lyndon, Maltbie, Nash, and Raymond, all of which were "written some time after the Transportation Act with its clear-cut distinction between price control and profit control." p. 306. Quarterly Journal of Economics, Feb., 1926, p. 295-328.

Railroad Abandonments and Additions, by Henry R. Trumbower. An analytical study of abandonments from 1920 to May 1, 1925, authorized by the Interstate Commerce Commission. Journal of Political Economy, Feb., 1926, p. 37-60.

Riding the Engine of the 20th Century, by Paul Kinkead. Impressions of a non-railroader. Liberty, Feb. 13, 1926, p. 49-51.

Theories of Labor Relations, by Wm. M. Leiserson. Six more or less widely discussed theories stated and analyzed. American Review, Jan-Feb., 1926, p. 6-15.

United States Has Only One-Twentieth of Earth's Land Surface and One-Sixteenth of World's Population, Yet One-Third of the World's Railway Mileage, by Lee G. Lauck. A brief summary of distribution of railway mileage. Trade Winds, Feb., 1926, p. 19-21.

Water Treatment and Locomotive Boiler Washing, by Carl C. Bailey. Baldwin Locomotives, January, 1926, p. 40-51.

Traveling, by Lawrence F. Abbott. Comparison of progress in traveling facilities, and progress of political methods. Dated "On Board the Southwestern Limited, Jan. 7, 1926." Outlook, January 20, 1926, p. 100-101.

Consolidation of Railroads—2d Supplement, 1925, compiled by Library, Bureau of Railway Economics. 21 mimeo. p. Issued by the Library, Bureau of Railway Economics. Apply.

The Progress of Newspaper Advertising, by Bureau of Advertising, American Newspaper Publishers' Association. Railroad advertising, p. 13, 16, 21, 31, 32, 40-41. 48 p. Pub. by American Newspaper Publishers' Asso., New York, Chicago, and San Francisco.

"WE BELIEVE that bus transportation serves an economic need in thinly populated sections where rail service can never pay its way and in cross-country service where no direct rail line exists. We believe also that railroads must furnish that form of transportation which the public demands, avoiding to the greatest possible extent duplication of service or wasteful competition."—J. H. Hustis, President, Boston & Maine.

Letters to the Editor

[*The* RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about* 250 *words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.*]

Timely to Discuss Purchasing Practices

RICHMOND, Va.

TO THE EDITOR:

Your editorial "Railway Purchases and Traffic," in the issue of February 6, is most timely. Railways must be unusually careful to have their acts correspond with their words in dealing with the public and the public service commissions. The records must be accessible to the scrutiny of the authorized representative of the I. C. C. at any time and must be so maintained as to show that the purpose and spirit of the Transportation Act have been carried out. Probably no other division of operation would be so vulnerable for attack and criticism as the purchasing department because no other division deals so intimately with the business public. It is, therefore, imperative that the purchasing power of our railways be maintained honestly and efficiently. Every business factor being equal, i.e., quality, delivery and price, it is entirely proper that the business should be placed with the manufacturer who is best located and who is in position to give the railroad the largest amount of traffic. I do not believe there is any question, however, but what the exchanging of purchases for traffic is a form of rebate.

H. C. PEARCE,
Director of Purchases and Stores, Chesapeake & Ohio.

Labor Union-Management Co-operation

WASHINGTON, D. C.

TO THE EDITOR:

Permit me to take exception to some of the statements and imputations of your editorial entitled "Labor Union-Management Co-operation," which appeared in the February 13 issue of the *Railway Age*. First I disavow any "disparaging" reference to "company unions" and "employee representation" in my address on the Technique of Union-Management Co-operation. I even departed from my prepared manuscript to make perfectly clear that by the process of examination and exception I was simply laying down the specifications for the foundation of genuine spontaneous co-operation.

May I also call your attention to the fact that my contribution of the evening was upon the *technique*, not the results, of co-operation. The results of co-operation is another story which will be told in due time. The five examples illustrating how union-management co-operation deals with problems of mutual concern to men and management were chosen simply to show how the technique of co-operation works in practice. For your editorial to insinuate that I assumed that "these same problems were not being recognized and solved by other forms of organized co-operation," is not warranted from any statement I made.

It seems that some of your feeling of annoyance with my address really springs from a basic misconception as to what really constitutes co-operation. Your editorial shows the need for more light on the meaning of this term. It also shows the necessity for a more complete analysis of the possibilities and limitations of co-operation as based on the various systems of organized relationships such as they have been developed to date in the railroad industry. I stand prepared to make further contributions to such an analysis. O. S. BEYER, JR.

The Ideal Passenger Brakeman

ALBANY, N. Y.

TO THE EDITOR:

General Atterbury, president of the Pennsylvania Railroad, emulating Mr. Statler, the hotel keeper, contemplates advertising the good service of his railroad in terms ostensibly addressed to prospective patrons but really intended also for the eyes of the employees. If the public is told that the "P. R. R." is going to give the people first-class service, the employees, seeing the advertisement, will put forth better efforts to cut out all second-class service. He cites an example: The Pennsylvania's passenger trainmen are far more diligent than formerly in giving to passengers on delayed trains an estimate of the probable duration of the delay. The brakeman, who knows that passengers are expecting him to make announcement, will more readily arouse himself to do the job in a proper manner.

This is a fine idea. I have not traveled much of late years on the Pennsylvania, and so do not know how long this excellent condition has existed on that road, but I could name a passenger brakeman up in Vermont who could carry out that ideal beautifully. He is naturally qualified to answer reasonable questions in an intelligent way, and with all necessary fulness; a born public servant.

In our ordinary experiences the traveler almost always gets answers to his questions couched in the briefest possible terms. How annoying this is! A trainman ought to answer all reasonable questions with the same manifestation of interest that you find in a store-clerk who knows his business and is anxious to sell you his goods.

I do not mean that I have often ridden on delayed trains with this Vermont brakeman; it is his general attitude and behavior that attract one's attention. He answers all questions on all features of the passenger's legitimate interest, as though he really liked to perform the service.

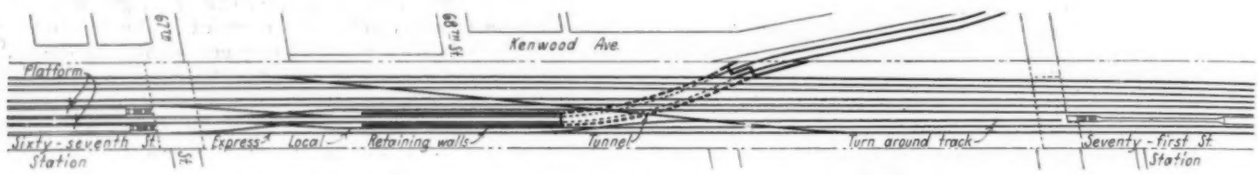
As I have said, this man seems naturally qualified for his job. I do not give special credit to what he has learned in the rule book, or to the acts of his supervising officers. It is native ability. Why should not every trainmaster make it one of the principal rules of his educational processes to require all of his ordinary men to take lessons from those who are extraordinary? Those who, like this natural-born passenger-trainman, are 100 per cent perfect (*in that one detail*), without having had much training?

From letters that I have seen in the *Railway Age,* I judge that the problem of giving to the public really first-class service on passenger trains (outside the sleepers, parlor cars and diners) is one that requires everywhere a good deal of study, care and perseverance. You cannot do a better public service in your columns than to keep this subject well agitated. The efficient trainman is in evidence, here and there, and he keeps us from sinking in total despair. The lazy or dull trainman (and the inefficient trainmaster who is responsible for him) can still be found with unpleasant frequency. As regards these two extremes, the passenger can perhaps do nothing; but, as to the great majority of men, between the extremes, he has a right to speak out! Jack them up! They could do a great deal better than they do! FORT ORANGE.

I. C. Chicago Terminal Project Now One-Third Completed

The first of four electrification units will go into service July 1—Other work in various stages of progress

ALTHOUGH the Illinois Central plans to spend $19,000,000 in the reconstruction of its Chicago terminals this year, and although it has been pressing this work actively for nearly 10 years, the magnitude of the complete project is such that it will be only slightly more than half finished at the end of 1926. In other words, the complete project involves a total expenditure of $95,000,000, of which $35,000,000 has been spent to date. It comprises the complete reconstruction of the passenger and freight facilities of the road in Chicago and the electrification of all service other than that on its branch west to Sioux City and Omaha. It contemplates the construction of a new and commodious passenger station at Roosevelt road, new local freight facilities at South Water street, a new suburban passenger terminal at Randolph street, the reconstruction of the main line from Randolph street south 29 miles to the southern limits of suburban service at Richton, involving the extensive rearrangement of tracks to provide additional facilities and the separation of grades with other railways and with streets, the construction of a large new gravity classification yard to be known as Markham yard near the southern limits of the work, and the electrification of all service on the main line and the South Chicago and Blue Island branches.



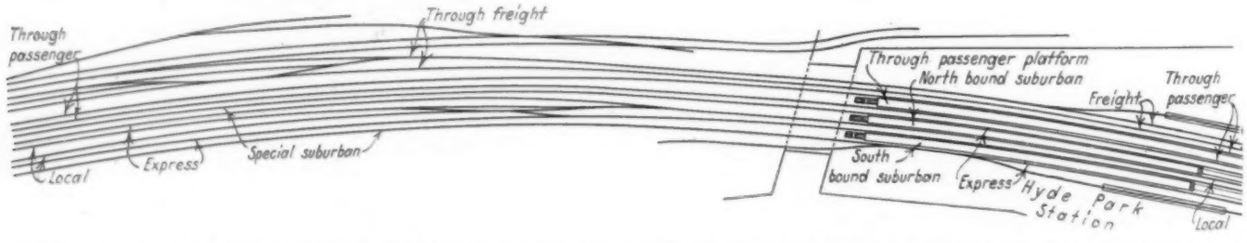
Track Layout in the Vicinity of the South Chicago Branch "Duckunder" Near Sixty-seventh Street

Of these various subdivisions of the project only work of a preliminary character has yet been undertaken on the central passenger terminal and the local freight facilities at South Water street. Work has just been started on the Randolph street suburban station and only a few of the tracks have been placed in their permanent location north of Twentieth street. South of that point the tracks have, however, been rebuilt and the grade separation work is either in progress or completed. Markham yard is nearing completion and will be placed in operation in the spring, while the first unit of the electrification, the suburban service, is scheduled to be placed in service on July 1. The further steps in the electrification—(1) the freight service north of Twelfth street, (2) the freight service south of Twelfth street and (3) the through passenger service—are not scheduled to be completed until 1930, 1935 and 1940, respectively. Work on this terminal will, therefore, continue for at least 12 or 15 years.

The following is a brief statement of the progress made so far and the present status of this large project:

Project Under Development Since 1912

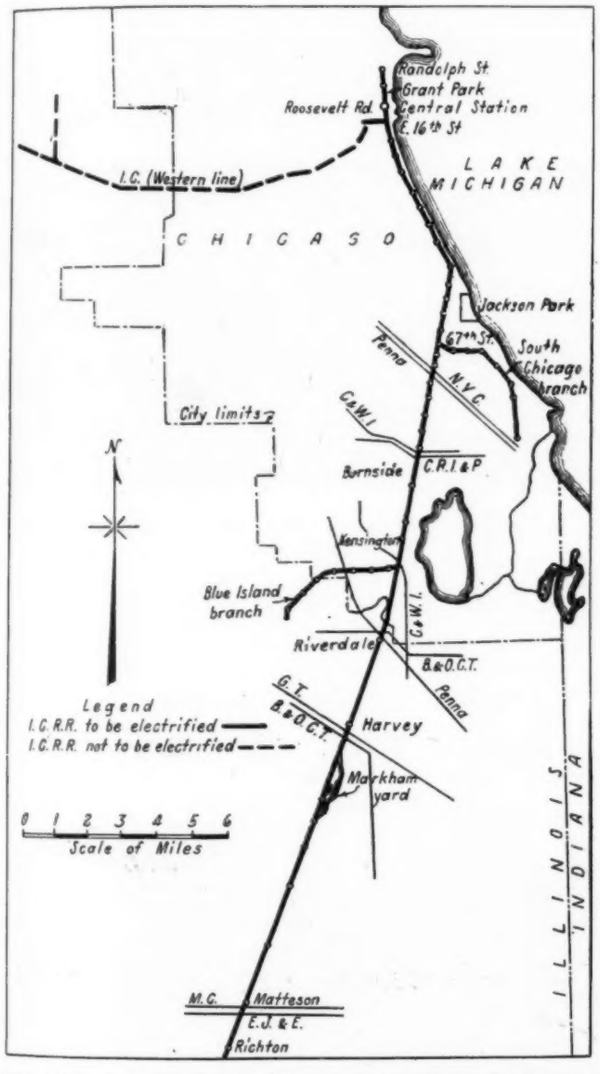
The beginning of this project dates back to 1912 when the railroad, the city of Chicago, and the South Park Commissioners, a municipal corporation having control of the south side parks, entered into negotiations with a view to the improvement of the lake front from Jackson Park to Grant Park, a distance of about six miles, and to the creation by the Illinois Central of modern freight, through passenger and suburban facilities.



Track Arrangement Immediately North of Hyde Park (Fifty-third Street) Station, Where Six Suburban Tracks Converge Into Four

Since 1852 the railroad has been the owner of the shore lands and riparian rights along Lake Michigan from the Chicago river to Randolph street, and from Roosevelt road (Twelfth street) to Fifty-first street. The Chicago Plan, completed in 1909 by the late D. H. Burnham, contemplated park areas, drives, bathing beaches and other recreational facilities along the lake front. It was necessary for the railroad, as owner of the shore lands, to release its riparian rights before work could be started by the commissioners in reclaiming the necessary land from Lake

Michigan. Since the railroad company was by this act to be forever prevented from increasing its width of right-of-way by filling in the lake, and since property values on the west side precluded purchase of additional right-of-way except at prohibitive cost, it was necessary for the railroad, before releasing its riparian rights, to be assured of enough land to take care of its future needs. The plan finally adopted gives the railroad an average width of 675 ft. between Roosevelt road and Thirty-first street for the development of a through passenger terminal, including



Map Showing Location of Illinois Central Lines Within the Chicago Terminal District

coach yard, enginehouse and other facilities, a right-of-way width of 250 ft. from Thirty-first street to Forty-first street, a width of 300 ft. from Forty-first street to Fifty-first street and a width of 200 ft. south of Fifty-first street.

The Lake Front Ordinance of July 21, 1919, a three-party contract ordinance between the city, the railroad and the South Park Commissioners, confirms the right of the commissioners to reclaim land from Lake Michigan for the purpose of building the proposed park, confirms the right of the Illinois Central to the land described above, requires the construction by the Illinois Central of new through passenger and suburban stations, and requires by certain definite stages the electrification of the suburban, through passenger and freight tracks. The Michigan Central owns some land between Monroe street and the Chicago river. It is, therefore, a party to the ordinance and is bound by the same provisions as the Illinois Central insofar as its interests apply.

Tracks Are Being Re-arranged

The ultimate development of this project will give the Illinois Central what is probably the most capacious railroad entrance to be found in any large city in the world. The main line has a right-of-way with a minimum width of 200 ft. and a total curvature of only 78 deg. in 39 miles. This right-of-way will be developed by provision for not less than 6 running tracks at any point and with 10 tracks from Fifty-first street to Eighteenth street.

The construction of the additional trackage is being accompanied by a regrouping of the tracks as regards the classes of service for which they are to be used. Thus along the west right-of-way there will ultimately be two switching tracks serving industries; next in order to the east will be the suburban mains, the through passenger mains and the freight mains, with the easterly freight main serving as a switching track for industries. The considerations which led to this grouping were many, but the chief factors were these: From the Chicago river to Sixty-seventh street, the city is almost entirely to the west of the railroad. This prompted the placing of the suburban mains on the west side of the right-of-way. It was desirable to group each class of tracks to facilitate the electrification by stages. The west side location for the suburban mains also resulted in minimum interference to other classes of service. The freight mains were located along the east side because all of the freight yards within the terminal area are on the east, thus insuring minimum interference in movement to and from yards. This arrangement left the center of the right-of-way for the through passenger tracks.

Extensive Construction Involved

One of the primary objects of the project is to increase the traffic-carrying capacity of the line, both by means of increased trackage and by the more expeditious movement of trains, particularly the high-speed operation of closely-spaced electric suburban trains. For this reason it was considered essential to separate grades at all crossings of streets and other railroads as well as at two points in the line where extensive crossover movements at grade would introduce serious obstructions to movements on the running tracks. The completion of the grade separation work on the main line will eliminate all grade crossings with streets for a distance of 30 miles and with railroads for a distance of 55 miles.

Since the difficulties inherent in track shifting, grade revision and grade separation work under steam operation are vastly magnified under electric operation it was decided to plan for an ultimate development of the entire width of right-of-way for the entire length of the electrified zone, and so far as possible to place all tracks in their ultimate locations prior to the commencement of electrification.

In general the track shifting and grade revision work were started near the south end of the electrified zones and have proceeded northward. The Monee Hill grade revision just to the south of the electrified zone, was completed in 1923. Material wasted from the grade revision was used in track elevation through Matteson and grade separation with both the Michigan Central and the Elgin, Joliet & Eastern at that point. The Harvey track elevation and grade separation now completed, eliminated all grade crossings with streets in Harvey and also with the

Grand Trunk and the Baltimore & Ohio Chicago Terminal.

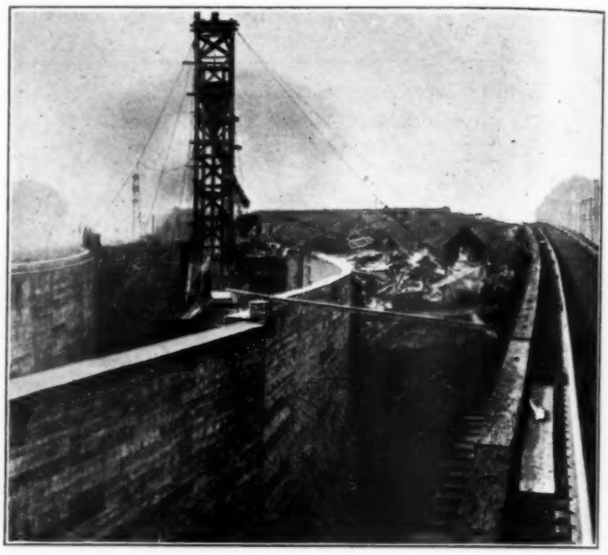
The Riverdale track elevation permitted the separation of grades with the Baltimore & Ohio Chicago Terminal and the Pennsylvania (Panhandle line). At Kensington work on the separation of grades with the Chicago & Western Indiana is now in progress but will not be completed until late this year. At Burnside the Chicago, Rock Island & Pacific, the Belt Railway of Chicago and the Chicago & Western Indiana have elevated their tracks above the Illinois Central, eliminating a grade crossing that has long been a serious source of delay.

"Duckunder" Eliminates Crossover at Grade

At Sixty-seventh street an undercrossing, now nearing completion, will permit the suburban trains from the South Chicago branch, a source of heavy suburban traffic, to reach the main line suburban tracks without crossing the busy through passenger and freight tracks at grade. Leaving the main line suburban tracks the trains for the branch descend on a three per cent grade on tracks located between retaining walls until sufficient overhead clearance has been developed to permit them to pass into a reinforced concrete and steel I-beam tunnel curving to the east and affording a connection with the tracks of the South Chicago branch. The main line tracks are carried on the roof of the tunnel. It is double-tracked throughout, and will materially reduce the delays incident to operating the suburban trains across the through passenger and freight mains.

At Forty-first street the railroad has for many years maintained a grade crossing and interlocking plant to permit movements from the freight main tracks on the east side of the right-of-way to a connection with the Chicago Junction railway, on the west side. Due to the necessity of lowering the main tracks at this point in conformity with the provisions of the Lake Front ordinance which made a direct grade crossing at this point impractical, and also to relieve interference with main line operation which would be occasioned by trains moving to and from the Chicago Junction, grades have also been separated at this point. This was accomplished by building an elevated structure, consisting of through plate girders on steel bents from the main freight tracks on the east side of the right-of-way to a connection on the west with the tracks of the Chicago Junction. The east approach of monolithic reinforced concrete slab and bent construction parallels the main tracks on a 1.7 per cent grade until sufficient height has been reached to permit the tracks to cross the main tracks on a 10-deg. curve.

While the electric suburban trains will be operated on tracks in their final location south of Twentieth street, it has been found necessary to provide for their operation over tracks in a temporary location between Twentieth street and Eighth street to avoid interference with the construction of the main passenger terminal to be built later at Roosevelt road. One of the features of the plan for this station will be the complete separation of the suburban service from the through passenger service and to this end provision has been made for the construction of a four-track tunnel below the level of the passenger tracks which will permit of the operation of suburban trains to and from the suburban terminal at Randolph street without any interference of one class of service with the other in the vicinity of the proposed passenger terminal.



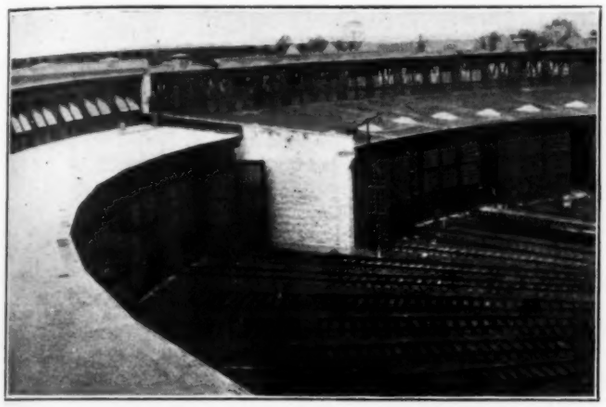
A Construction View of the South Chicago Branch "Duckunder"

A Subway on the Main Line at One Hundred and Thirty-seventh Street

Pending the completion of this terminal and to avoid interference with its construction, temporary tracks for suburban trains have been constructed along the east side of the right-of-way between Eighteenth street and Eighth street, and a connection between these tracks and the permanent suburban tracks along the west side of the right-of-way to the south will be obtained by means of an undercrossing beneath the approach tracks for the passenger

trains to the present station. To affect this separation of grades the through passenger tracks will be elevated on a fill retained by concrete cribbing while the bridges over the suburban tracks will be constructed of I-beam spans on pile bents at these structures will be of a temporary nature.

From Fifty-first street north to the Chicago river the railroad was located on the shore of Lake Michigan and to protect the roadbed from damage by wave action the tracks were placed on fill at elevations varying from 12



The Enginehouse at Markham Yard Nearing Completion

to 19 ft. above the lake level. The South Park Commissioners are reclaiming from the lake a strip of land about 600 ft. wide from Grant Park to Jackson Park. The commissioners have completed one and are now building two additional viaducts across the railroad right-of-way to give access from the city to the park area. Partly to avoid the necessity for long or steep approaches to these viaducts and partly to insure that the railroad would not obscure the view to the lake the commissioners and the city required the railroad to depress its tracks between Thirty-first street and Forty-second street.

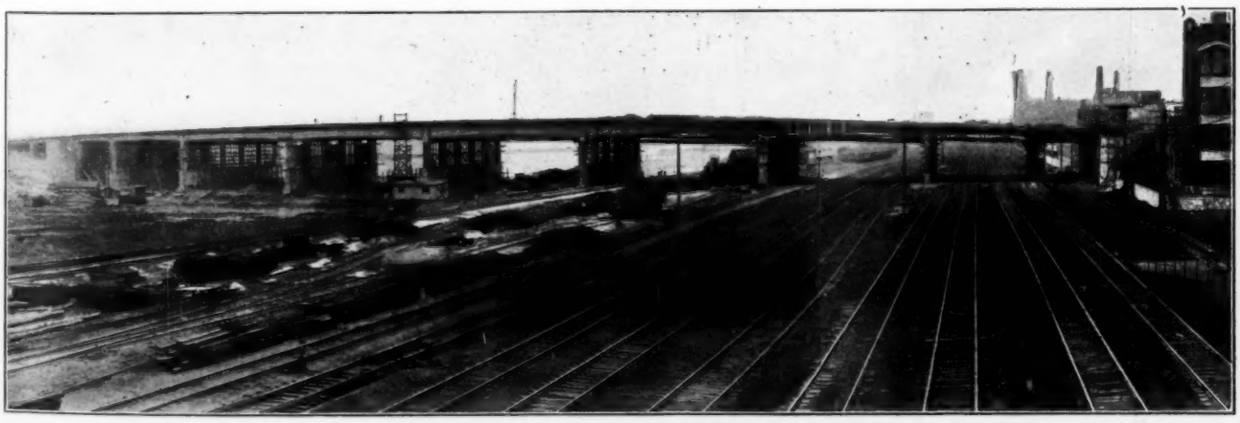
South of Forty-second street the tracks ascend on a 0.3 per cent grade, reaching an elevation at Forty-seventh street sufficient to permit a subway at that point. This work involved extensive construction of retaining walls and the installation of an elaborate system of roadbed drainage. Near Thirty-ninth street the 20-ft. outfall sewer of the Chicago Sanitary district crosses the roadbed. It was originally covered by a sufficient depth of earth to protect it from the weight of passing trains, but when the tracks were lowered it was necessary to take steps to protect the sewer from damage due to train loading and this was accomplished by building a reinforced concrete slab bridge over the sewer, the slabs resting on reinforced concrete pile bents.

Will Increase Suburban Facilities

The proposed arrangement of suburban tracks contemplates ultimate provision of four main tracks from the terminal at Randolph street to Eighteenth street, six from Eighteenth street to Fifty-first street (two for local, two for express and two for "special" or non-stop express trains), four from Fifty-first street to Kensington and two from Kensington to the south terminal of the suburban service at Richton, all to be used exclusively for suburban service.

Under present steam operation there are four main tracks exclusively for suburban service, but during the morning and evening rush hours it is necessary to use also the two through passenger and two freight mains for suburban service, an expedient which seriously cripples the passenger and freight business during those periods. The old arrangement of suburban tracks consists of a southbound and a northbound local suburban track on the west side of the right-of-way with an island platform between and northbound and southbound express suburban tracks near the east right-of-way with island platforms between, the express and local tracks being separated by the through passenger tracks. At junction points where many passengers must transfer from an express to a local platform or vice versa, it is necessary for the passengers to leave the platform, descend a flight of stairs, pass through the waiting room in the station at street level and climb another flight of stairs to the other platform.

Under the new arrangement the southbound suburban tracks will be grouped on the west and the northbound mains immediately east of them with the "special" express tracks on the outside, the express tracks next and the local tracks in the center. In portions of the territory served exclusively by local trains a single island platform will be located between the northbound and southbound local tracks. At points where both express and local stops are to be made two platforms will be provided, one between the northbound local and express tracks and one between the southbound local and express tracks. This arrangement will permit the ready transfer of passengers as well as facilities for turning the local trains without crossover movements involving express or "special" tracks and will also permit operation of the special express or non-stop trains without interference from express or local trains. The points of interchange of local and express passengers will be at Sixty-third street and Kensington. The main



The Recently Completed Twenty-third Street Viaduct

interlocking plants will be located at Fifty-first street, Sixty-seventh street and Kensington.

It will be possible to turn local trains at Fifty-first street and Sixty-seventh street, permitting them to return in time to carry another load in the direction of heavy traffic during the rush periods.

Plan to Build New Suburban Stations

Plans have been made for a convenient modern suburban passenger terminal north of Randolph street, connected by a pedestrian subway with the west side of Michigan avenue, a busy thoroughfare for through automobile traffic. This subway was completed in 1921, as one of the first construction units of the terminal program. Because of the density of suburban traffic at this point it has been decided to provide a temporary station and tracks south of Randolph street outside the limits of work for the first stage of the new station. When this temporary station has been completed it will be possible to commence the active prosecution of the work on the permanent station.

At the Van Buren street station, which supplements the station at Randolph street as the downtown terminal of the suburban traffic, extensive station changes have been completed, including a passageway connecting the station with the west side of Michigan avenue similar to the one at Randolph street.

The Suburban Passenger Equipment

The suburban passenger equipment will consist of units of one motor car and one trailer car semi-permanently connected, and trains will be made up of from one to five of these units. The cars are all-steel construction with double-end control, air-operated doors, and couplers which automatically couple air and electric lines, facilitating the make-up of trains and permitting quick turnarounds.

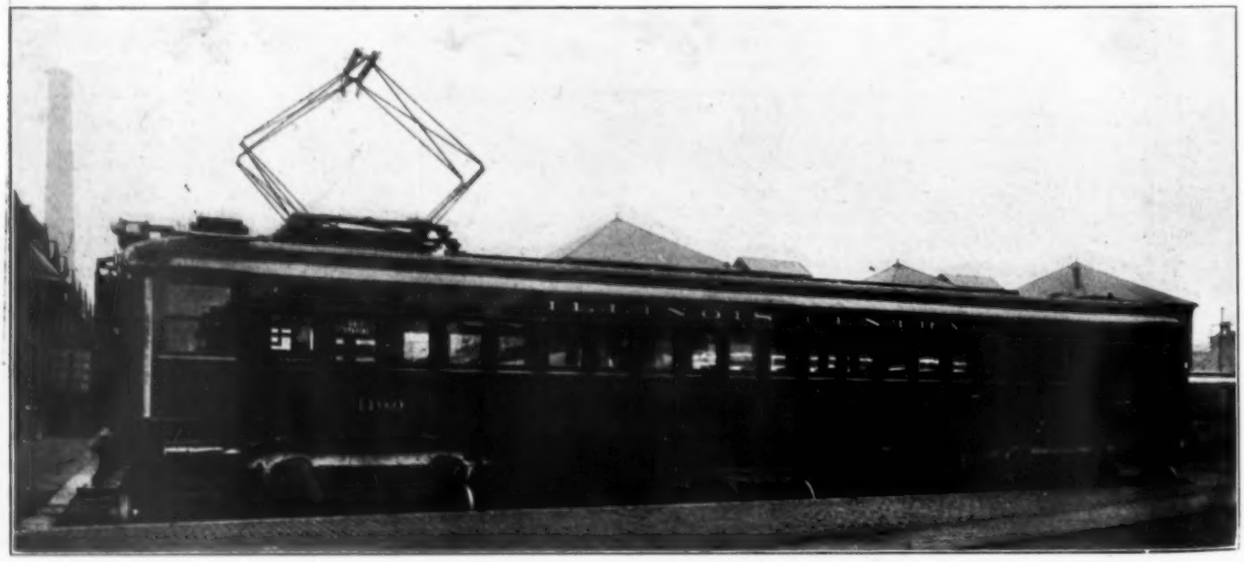
To meet the needs of rapidly growing traffic the railroad purchased 45 new all-steel suburban cars in 1921 and 1922. In general design these cars are the same as those to be used as trailers in the new motor-trailer units. In addition to these cars the company has ordered 130 motors and 85 new trailers, the delivery of which will provide the railroad with 130 motor-trailer units or 260 cars for initial operation.

The system of electrification adopted provides for 1500-volt direct current with overhead conductors.* The selection of this system was the result of a study made by a commission of prominent engineers after a thorough study of the operating conditions to be met and the comparative costs of various proposed systems.

Catenary Supports on the Four Track Line

Ordinance Provides Program of Progressive Electrification

The Lake Front ordinance requires that the electrification of the suburban service be completed by February, 1927. The present program sets the completion date about seven months ahead of this time. The freight service north of Roosevelt road must be electrified prior to 1930, the freight service south of Roosevelt road by 1935, and



One of the New Coaches Equipped for Electric Operation

*A complete description of the distribution system is given in the *Railway Age* for February 13, page 432.

the through passenger service, under certain conditions, by 1940. Under electric operation the railroad will have the option of operating manifest freight trains by steam power, to avoid interchange of power, and will also have the option of making interchange movements with other railroads by steam power.

The limits of the electrified suburban service will be at Richton, 29 miles from Randolph street, and at South Chicago and Blue Island on the South Chicago and Blue Island branches, respectively. The limit of the electric zone for through passenger and freight business will be at Harvey, 20 miles from Randolph street. The western or Omaha line of the Illinois Central, which leaves the main line at Sixteenth street, will not be electrified.

The Markham Yard

Markham yard, a large new gravity yard now nearing completion, was located on the east side of the right-of-way between Harvey and Homewood to serve as a convenient point of interchange between steam and electric power and with a view to convenient interchange freight movements to connecting lines. It was located outside the electrified zone to avoid the costly electrification of approximately 116 miles of yard tracks. A point of considerable interest is the installation of car retarders below the humps and on the yard tracks of both northbound and southbound classification yards. The northbound yard is being equipped with the electro-pneumatic type and the southbound yard with the all-electric type. The retarders will be controlled from towers and it is expected that their use will materially reduce the cost of hump switching in the yard. The yard is also equipped with the mechanical type of hump, permitting the grade of the hump to be adjusted quickly and easily to meet changes in operating conditions. It is scheduled to be in operation on April 1.

Since this yard will serve as the northern terminus of steam operation, mechanical facilities have been constructed to care for all of the freight steam motive power of the Illinois division. The erection shop and roundhouse provides 36 100-ft. stalls and 12 120-ft. stalls, with a 100-ft. turntable. Other mechanical facilities include a powerhouse, machine shop and mill building. The coaling facilities comprise a 1,200-ton concrete chute serving six tracks. Car repair facilities, including 14 miles of track, carpenter shops and a lumber shed are provided.

Space for the station and headhouse, throat, coach yard and engine facilities has been reserved between Eighth street and Thirty-first street. The Lake Front ordinance also provides for the construction of an Eighteenth street railroad connection "extending westwardly from the throat of the passenger station to a connection with the western line of the Illinois Central in the vicinity of Twenty-second street and Archer avenue for the purpose of affording easy access to the new station for other railroads entering Chicago from the south and west." Practically all the right-of-way for this connection has been purchased but no construction work has yet been started.

A large amount of work remains to be done before the completion of the entire terminal project. At present the efforts of the officers in charge of the work are being directed to the completion of the steps necessary for the electric operation of the suburban service in order that there may be no failure to begin the operation of trains by electric power on the appointed date, July 4, 1926.

Track Elevation Work in Progress at Riverdale

Hearing on Consolidation Bill

WASHINGTON, D. C.

ALFRED P. THOM, general counsel of the Association of Railway Executives, continued his testimony before the Senate committee on interstate commerce on February 18 and 19 on the Cummins consolidation bill. He said that while there is some difference of opinion among railway executives and many see no necessity for consolidation, others see advantages in it and a majority of them, as indicated by resolutions adopted by members of the association, are willing to "go along" with the policy expressed by Congress and the President. The resolutions, which he read, declared in favor of a permissive as contradistinguished from a compulsory policy of consolidation, if there is to be legislation on the subject. He said he wished to oppose with all possible earnestness the introduction of any idea of compulsion, direct or indirect, in the bill at this time. Therefore he opposed that part of the bill which proposes to recapture excess earnings above 6 per cent in such a way as to create an incentive to consolidate. A large part of his testimony, however, dealt with details of the machinery proposed for carrying out consolidations or unifications and he said he would be gratified if the committee could accept suggestions as to many of these points, from a draft of a bill he had prepared, after careful study by members of his law committee, which might be covered in the Cummins bill but which might be more specifically expressed. After discussion Senator Cummins indicated a willingness to accept some of these suggestions.

Mr. Thom said he did not think it possible for Congress

to legislate at this time with any wisdom or certainty as to what shall take place at any given time in the future; it does not know the subject it will have to deal with at the end of three or five years, when the commission would be required by the bill to formulate a consolidation plan, because there may be important changes in the relations between rail and other forms of transportation and Congress could not say with certainty now that it would want only a consolidation of railways. He proposed a provision that at the end of seven years it would be the duty of the commission to report to Congress what progress had been made and its recommendations, saying he thought Congress would be surprised at the extent of the progress toward consolidation that would have been made by that time. He said he knew enough of the thoughts of the railway executives to feel that under a permissive law plans for consolidation would be filed with the commission at once and competitive conditions would bring about others. Congress ought to deal with the subject of recapture in a separate bill, Mr. Thom said, instead of using it as an incentive toward consolidation, and the recapture should be based on the average for a period, such as five years, rather than on a single year because the latter plan provides no way for dealing with a deficit in a lean year. Senator Cummins said that he thought the suggestion deserved careful consideration and that he intended to present it to the committee.

In discussing the procedural details of the bill Mr. Thom said that if Congress wants consolidations it should not put too many obstacles in their way and that he did not understand that consolidation was being proposed as an offering to the railways but as a policy which Congress considers in the public interest. When Senator Wheeler asked if he would have anything in a bill to eliminate the "objectionable features" of the Nickel Plate plan, involved in the stock control by a holding company, Mr. Thom said he had not studied the Nickel Plate plan but that both his bill and the Cummins bill would eliminate from the consideration of the commission mere private rights. In his opinion the spectacle presented before the country during the past few months of a hot controversy before the commission based almost entirely on the private rights of dissenting stockholders, when the commission should have rendered a prompt decision as to whether or not the plan is in the public interest, was very unfortunate. The rights of the stockholders should have been asserted in the courts, he said.

Decision on the question of the public interest, on an application filed pursuant to a declaration of policy by Congress, ought not to have been delayed as it has been.

Mr. Thom's draft of a bill would require a finding by the commission, in order that a consolidation might be approved, that the plan proposed was in compliance with the policy of Congress and not contrary to public interest, while Senator Cummins had proposed in his bill an affirmative finding by the commission that it would be in the public interest. Mr. Thom said he was not contentious on that point but that he was trying to suggest an easier condition to satisfy. He also suggested that an intervening petition of a carrier asking that it be included in a consolidation or system should be required to be filed before the close of hearings on the plan, not merely at any time prior to the entry of an order, as otherwise an order might be delayed indefinitely. Senator Cummins said he could see a good deal of force in the suggestion. When Mr. Thom also urged express provision in the bill prescribing the powers of consolidated corporations, Senator Sackett asked if that were not going part way in the direction of federal incorporation. Mr. Thom said that the idea of federal incorporation had been abandoned because there was so much opposition to it as to defeat a bill that should include it, but that he thought it necessary to give a consolidated company power to operate in case such operation should be prohibited by a state law. He also urged that where the value of the securities of dissenting holders is to be submitted to appraisal by the Interstate Commerce Commission the report of the commission should be treated only as equivalent to that of a master of chancery, to be reviewed by a court. He said there is grave doubt as to the power to leave such a decision exclusively to the commission.

A. H. Harris, vice-president in charge of financial and corporate relations of the New York Central, testified on February 24, expressing hearty accord with the purpose of the Cummins bill to permit voluntary consolidations but opposing any legislative compulsion, penalty or time limit to hasten railway consolidation, saying that what is needed is a letting down of the bars to permit a resumption of the evolutionary process by which the large systems have been built up in the past. After there has been an opportunity to see what progress can be made it will be time enough to consider legislation to force the process, he said. Mr. Harris said he had participated in the work of consolidating some of the lines of the New York Central system and that it is now fairly well compacted but the inclusion of the Michigan Central and the Big Four, of which it owns about 95 per cent of the stock, has been delayed by the anti-trust act and the Transportation Act because of some thought that they are parallel and competing lines. Consolidation would be advantageous in permitting financing for the system as a whole and in increased flexibility in operation. The New York Central and others have been held up for five years because of the requirement that consolidations must be in harmony with the plan which the commission was to prepare but which it has not found it possible to prepare, he said, and railroads in the past have shown no reluctance to consolidate. There probably would have been more consolidation had it not been for the obstacles set by law, but what is needed is permission to consolidate, power to consolidate and machinery under which it can be accomplished. In reply to Senator Cummins Mr. Harris said that the New York Central, Pennsylvania and Baltimore & Ohio know pretty well what roads they want to take in but he said it would take more than the three years allowed by the bill to accomplish the negotiations and other steps necessary. The New York Central is a very simple case, he said, but when it comes to taking in outside lines a great deal of time and patience are required. The New York Central has been negotiating with a short line for years which it wants to buy and which is willing to sell but which demands a price which the New York Central regards as extravagant. Roads are not content to submit the question of price to appraisal by the Interstate Commerce Commission until the courts have settled the principles of valuation more definitely because of great uncertainty as to the result.

There is a weak road problem, Mr. Harris said, but the important problem is as to what is going to be done with the roads that handle the bulk of the business of the country, and he did not believe it is the concern of Congress to try to protect the investor in a weak line. If earning power were to be taken into consideration in fixing values much of the difficulty involved in putting roads together on a basis of value would be eliminated. In this connection he referred to a table of 46 weak roads used by Senator Cummins in an article, some of which have since become much stronger, and whereas their net operating income for 1922 was only about $32,000,000 in 1925 it was $75,000,000.

The hearing was to be continued on February 25 with Ben B. Cain, vice-president of the American Short Line Railroad Association, as the witness.

G. H. & S. A. Uses National System of Automatic Train Stop

Intermittent inductive type of automatic stop with forestaller is in service on a passenger division

THE Galveston, Harrisburg & San Antonio has completed the installation of the National Safety Appliance Company's intermittent inductive type of automatic train stop, including the permissive feature, on its complete passenger engine division of 50.6 miles, single track, between Rosenberg, Tex., and Glidden, the entire assignment of 39 locomotives being equipped. This territory was equipped in compliance with the first order of the Interstate Commerce Commission, dated June 13, 1922. The National system, as employed on the G. H. & S. A., incorporates a unique manual-pneumatic forestaller, a development which carries out the principle of the National Company to use no electrical circuits on the locomotive in train stop equipment. This forestaller was developed subsequent to July 18, 1924, when the commission issued a ruling allowing the use of the permissive feature in train stop systems.

The G. H. & S. A. is one of the Texas and Louisiana lines of the Southern Pacific. For several years the Pacific System of the Southern Pacific had been investigating and following closely the development of automatic train control. On the Southern Pacific, with its varying conditions of climate, grades and traffic, the conclusion was early reached that a simple, effective system of automatic train stop operating on the inductive principle and entirely free from electrical apparatus on the engines would best meet the company's needs. In 1921 a trial installation of the National's device was made by the railroad near Oakland, Cal., at the request of the Interstate Commerce Commission after the latter had investigated the system during the period between 1915 and 1919.

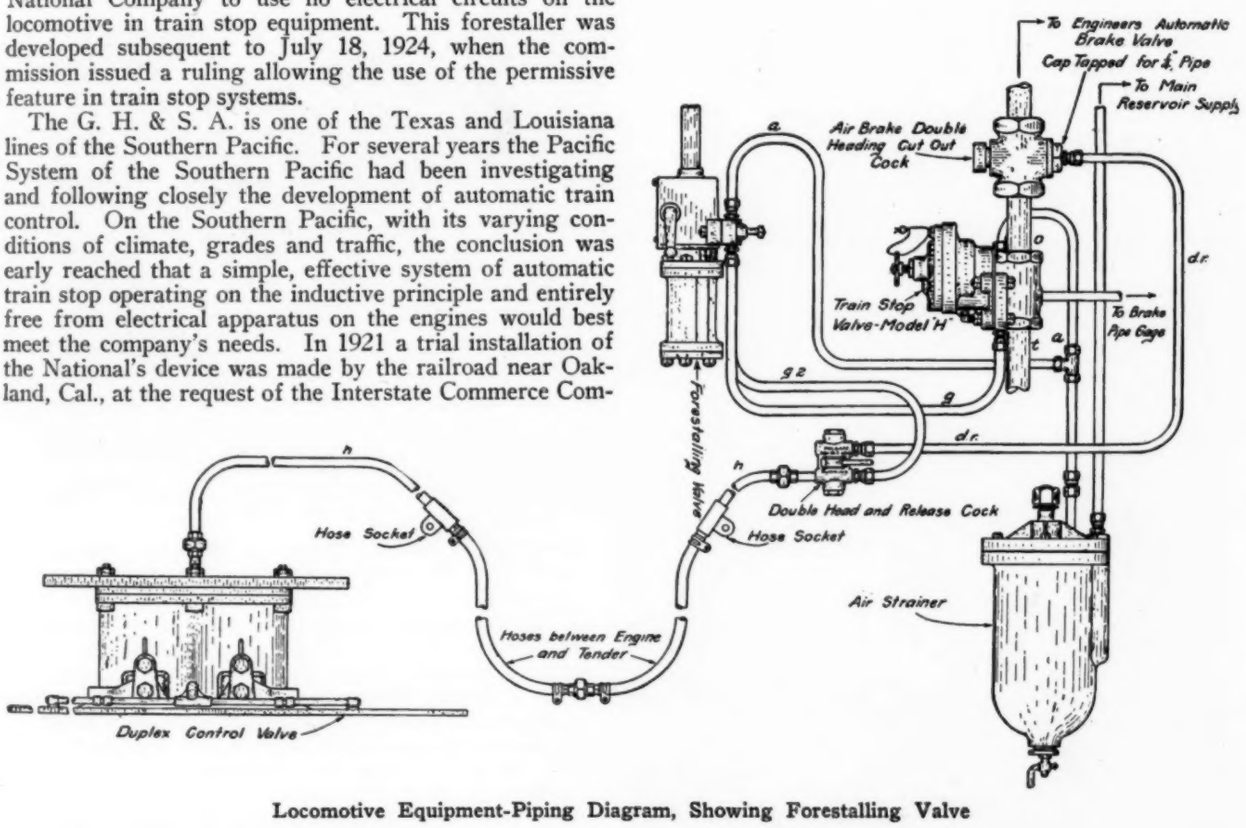
Shortly after the issuance of the commission's first order the G. H. & S. A. appointed a representative to observe the operation of the device on the Pacific System. In January, 1924, a test installation was completed on the G. H. & S. A. between Rosenberg and Randon, consisting of 6.2 miles of single track and 6 engines, this test section being on the district ordered by the commission. Extensive tests were conducted on this short section over a period of several months, which finally resulted in the decision to extend the installation of the National system to complete the passenger engine division, as ordered, between Rosenberg and Glidden.

Description of the Installation

The test section from Rosenberg to Randon included circuits in connection with all distant signals so that an automatic brake application would not occur when these signals were passed while in the caution position, provided that the train was moving below a prescribed speed.

This feature was included to conform with paragraph 2c of the commission's specifications, under automatic train control or speed control. At all home signal locations "key-bys" were provided which would permit of neutralizing the track magnet by a member of the train crew, to facilitate switching moves, etc. The "key-by" was manipulated by inserting a switch key in a special circuit-closing switch located in the signal case.

In July, 1924, after the commission authorized the permissive feature, it was decided that proper handling of trains would not require the special provisions, and all speed control, "key-by" and special siding circuits were removed. This left the installation, insofar as the track was concerned, a simple automatic stop. The permissive



Locomotive Equipment-Piping Diagram, Showing Forestalling Valve

feature was provided by incorporating with the engine equipment the National's forestalling valve.

Territory and Traffic Handled

The train control district begins at the west end of Rosenberg station limits, 37 miles west of Houston, Tex., and extends west to Glidden, a distance of 50.6 miles.

Track and Signal Plan of Typical Section Showing Location of Magnets

This is all single track road and includes 69 train control indication points. Twenty-one passenger and 18 freight locomotives are equipped. The territory is in a flat prairie country, with grades mostly under 0.3 per cent; the maximum grade, for a short distance only, being 1.1 per cent. The maximum curvature is 2 deg. 30 min. On this district passing sidings are located about five miles apart and accommodate from 80 to 90 cars.

The train movements consist of four scheduled passenger trains and two freight trains daily in each direction. Passenger engines are operated from New Orleans, La., to San Antonio, Tex., and are also run between these points and Houston, alternating the long and short runs. Freight engines are operated between Houston and Glidden.

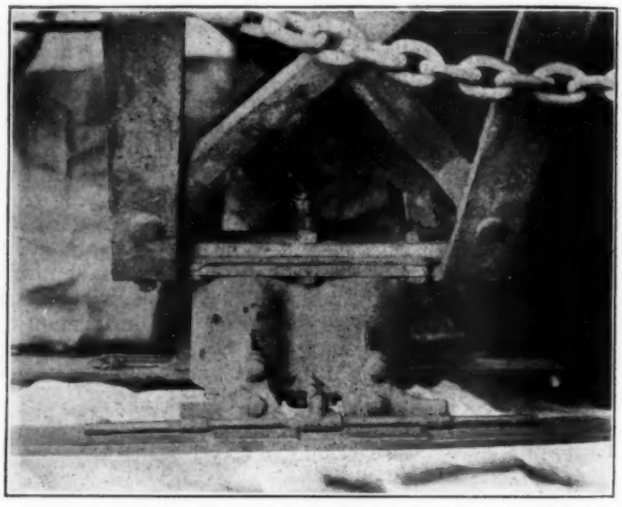
Train Stop Superimposed on Automatic Signals

This district was already equipped with direct current, normal clear, automatic signals of the semaphore type,

A Typical Double Head-Block Signal Location, Showing Magnet in Track

operating to two positions in the lower quadrant, to give the home and distant indications. The automatic signals are controlled by the overlap system, the old Harriman lines standard, as distinguished from the "absolute permissive" block system. The night indications are red for stop, yellow for caution and green for clear. The lamps are electrically lighted, with approach lighting circuits.

Headblock signals are located opposite each other about 60 ft. in the rear of the siding switch points, with one train-control track magnet for each location. The track magnet at headblock locations is placed at the signals. The signal governing toward the siding is a two-arm, home-and-distant signal, while the one leaving the siding is a one-arm home signal. Governing the approach to each siding and located braking distance from the headblock signal, is a one-arm distant signal. At the distant-signal location a track magnet is placed in the center of a five-rail track section, the magnet being located about 83 ft. in advance of the signal. Between sidings staggered pairs of one-arm home signals are located, the number of pairs of these intermediates depending upon the distance between sidings. At each intermediate home signal loca-



The Duplex Control Valve Is Mounted Beneath the Locomotive Tender

tion a track magnet is placed in the center of a five-rail track section, the magnet being located about 83 ft. in the rear of the signal. Where headblocks of adjacent sidings are only about 1.5 miles apart, the distant signals and the intermediate signals are located opposite each other. At such locations, as is the case at headblock locations, one track magnet is used for operation of trains in both directions.

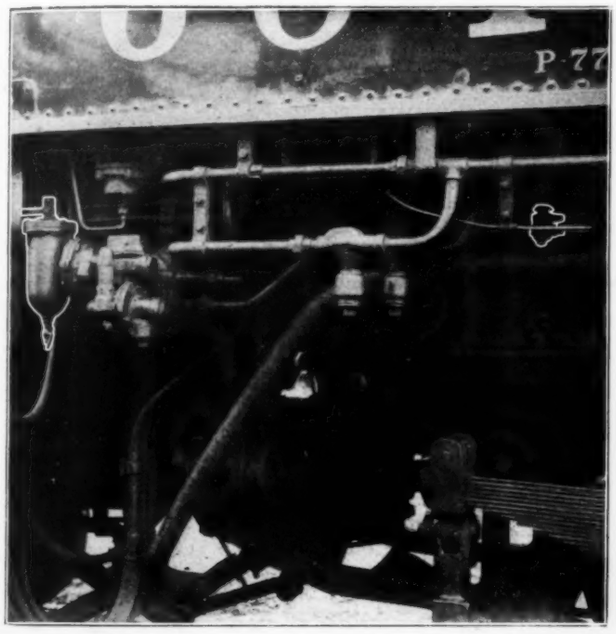
The location of the track magnet in advance of the distant and in the rear of the intermediate signal has no significance with reference to the functioning of the train-control system, but such positions were selected in order that the best use might be made, in connection with the existing track sections, of the signal system. The short track sections at magnet locations are used in order that the current consumption of the magnet neutralizing coils will be reduced to a minimum. With this arrangement current is furnished the coils only during the time that the engine is traversing this short section of track, about 165 ft. For most train movement this is only a few seconds. The current consumption of the magnet, while neutralized, averages about 1.9 amp., which, based on 15 train

movements a day, produces an average of about three ampere-hours a month for each track magnet.

Special Features of Wayside Apparatus

Switch protection is provided by the shunting of the track circuit through a switch circuit controller. The fouling protection for turnouts and crossovers consists of customary bonding and cross bridles. All leads into the main track are provided with hand-throw lifting derails. The train control protects through the one interlocking plant in this district, located at Eagle Lake, which includes protection for two railroad grade crossings 1,700 ft. apart.

Four cells of caustic soda battery connected in multiple



The Air Strainer and Release Are Located Beneath the Cab

are used on each track circuit. An 8-volt, 4-cell portable storage battery is used at each signal location to operate the signal, and to feed the line circuits and neutralizing coil of the track magnet. A system recently put in operation on the Southern Pacific Lines, and which is working out very satisfactorily, is to have each maintainer charge the storage batteries on his district. The signals are provided with double cases, the upper compartment containing the signal mechanism and the lower one the relays. The shelves carrying relays in which the back contacts are in use, are supported on elliptical springs and, in addition, these relays are individually supported on coil springs.

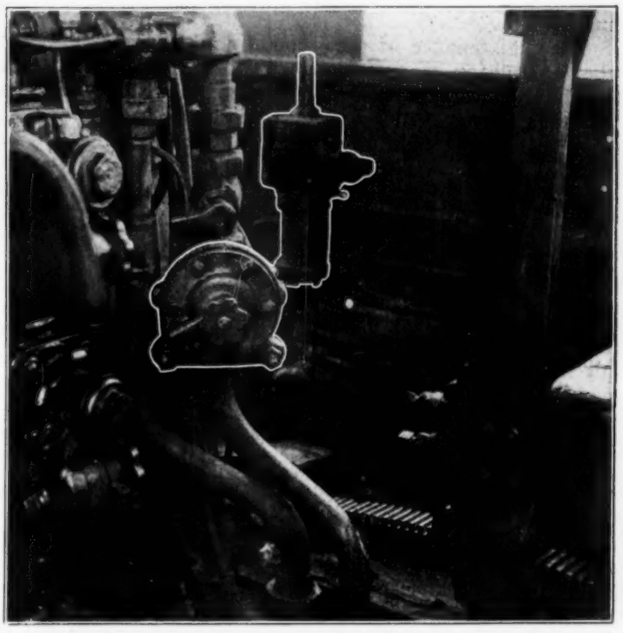
Underground wires, from signals to batteries, magnets, etc., are run through standard galvanized iron pipe. The use of pipe in place of wood trunking was based on the favorable results of experimental installations covering a period of ten years. Bootleg connections are drained towards junction boxes, as are the long runs of pipe paralleling the track. Such runs are raised at the center points, to drain in both directions. The bottoms of junction boxes are fitted with drain pipes.

Train Control Equipment and Its Operation

When an engine passes over an active track magnet, an automatic brake application is effected by the magnetic release of one or the other of two magnetically-held valves in the duplex control valve which is mounted beneath the tender about six inches above the track magnet. The opening of either of these valves vents air from the pipe connections and the train-stop valve, normally under main-reservoir pressure, and causes a large reduction in pressure by reason of a restriction in the supply from pipe *a*. This reduction of pressure, on one side of a diaphragm in the stop valve, allows brake-pipe pressure on the other side to deflect the diaphragm, opening the brake pipe to a service-application exhaust port, and closing a non-release valve to prevent a supply of air reaching the brake pipe from the engineman's brake valve. The small flow of air through the control valve keeps that valve open and continues the brake application until the train is stopped. The release cock, accessible only from the ground, is then operated to stop the flow of air for a moment and allow the control valve to close. When the release cock is returned to running position, as it must be to stop a "penalty" venting of air from the brake pipe through pipe *dr*, all parts are again normal.

Operation of the Forestaller

The forestalling valve, when operated, closes communication between pipes *g* and *g2*. The valve is closed by a differential piston and remains closed during the slow movement of this piston. The operating time of the piston can be adjusted within sufficiently wide limits to meet requirements in different situations; on the G. H. & S. A. 18 seconds has been found satisfactory. While the valve is closed, release of the control valve cannot cause operation of the stop valve because air is retained at full pressure in pipe *g* and the stop valve. At the same time, the flow of air through the control valve is prevented, and this valve is in position to be held closed magnetically as soon as the track magnet is passed. The piston is operated by air admitted from pipe *g*; the admission valve is opened when the operating handle is rotated three-quarters of a revolution, and is automatically closed (at the same time opening an exhaust port) by the piston at the completion of the stroke. The piston, therefore, regardless of the position of the operating handle, returns to normal position, leaving the valve open between pipes *g* and *g2*,



The Train Control Valve and Forestaller, Mounted in the Locomotive

so that the equipment is again in normal condition. A forestalling operation cannot be effected by turning the handle after the control valve has opened, because the pressure in pipe *g* is then much too low to move the piston. The forestalling valve must be operated before an active track magnet is reached and late enough so that the magnet will be passed during the operating time; although a repeat operation can be started quickly if the time is likely to expire before the locomotive passes the magnet.

Maintenance of Train Control Equipment

As the installation has been in service since April, and practically in operation under regular maintenance since January 1, 1925, sufficient time has passed to permit the co-ordinating of the maintenance of the system so that it may be performed efficiently. The division in maintenance between the signal and mechanical departments is drawn along the line naturally provided by the location of the different parts of the equipment.

The roadway apparatus is under the supervision of the signal department. About the time that the train control system was put in service, additional interlocking facilities were also completed, which necessitated the rearrangement of signal maintenance sections and the employment of two additional assistant maintainers. The actual expense of labor chargeable to the maintenance of automatic train control, however, over a period of several months has averaged somewhat less than the cost of one assistant maintainer's salary; this for the district of 51 miles.

The maintenance of the locomotive equipment is under the supervision of the mechanical department. At each of the two roundhouses in Houston, and at the roundhouse in San Antonio, a test rack is installed in which all of the engine apparatus can be assembled readily in its relative position as in place on the locomotive. It can then be given operating service tests under conditions practically identical, except for the actual degree and nature of vibration, with those which exist on the locomotive.

Repairs to locomotive equipment are made by the regular roundhouse forces. One man at each roundhouse is individually responsible for the adjustment and repair of all the train-control apparatus at that point. The train-control apparatus on each engine is tested for operation, the height of the control valve gaged, and the time of operation of the forestalling valve noted, before an engine leaves the roundhouse. This test is made at the Houston passenger station on those engines that pass through Houston without being taken to the roundhouse. Inspection such as the above is made by the inspector at the terminal in the course of his usual inspection of the locomotive air equipment. Each roundhouse has its own seal, and all apparatus, when adjusted, is sealed, and a record kept. In this manner a check can readily be made of the time, place and character of any work on the apparatus, as all parts are numbered for record.

"The Movement of Persons and Commodities over the highway has come to have a very definite and important part in the transportation scheme. By virtue of its flexibility the motor vehicle has built up a traffic peculiar to itself and has altered modern business demands and created new passenger desires to an extent that has made it a real economic necessity. This new medium has made the proper co-ordination of transportation necessary to a degree never before experienced. Proper co-ordination can be effected through intelligent regulations or by railroad operation of motor vehicles."—From a statement by the vice-president in charge of traffic of an eastern railway.

Freight Car Loading

Washington, D. C.

Revenue of freight car loading in the week ended February 13 amounted to 917,144 cars, an increase of 13,209 cars as compared with the corresponding week of last year but a decrease of 18,445 cars as compared with 1924. Increases as compared with last year were reported in grain and grain products, coal, coke and miscellaneous freight, and in the Pocahontas, Southern, and all three Western districts, while the Eastern and Allegheny districts showed reductions. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
Week ended February 13, 1926

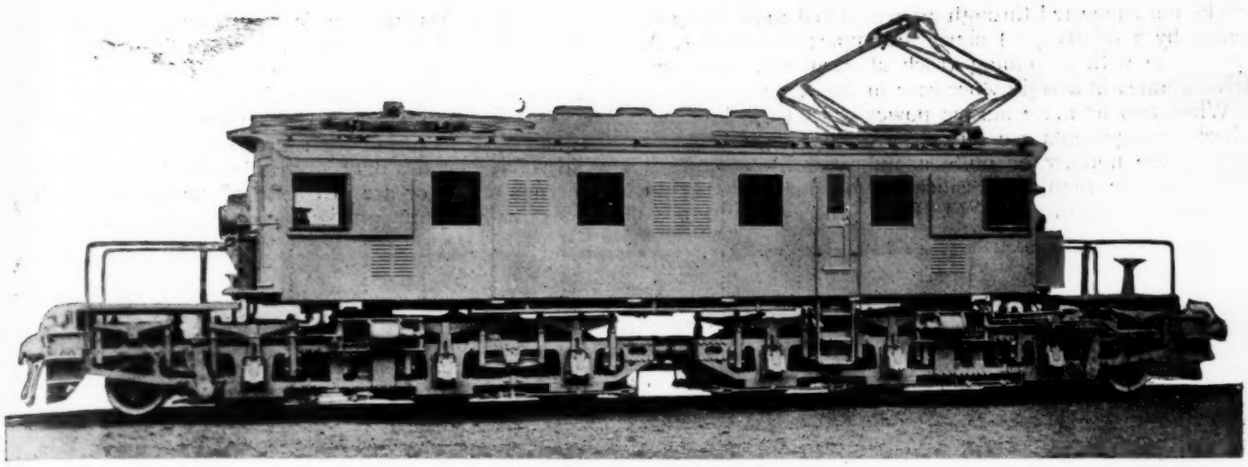
Districts	1926	1925	1924
Eastern	201,659	214,439	225,345
Allegheny	183,709	185,186	194,129
Pocahontas	55,954	44,508	44,551
Southern	154,044	147,212	148,857
Northwestern	116,381	113,496	122,066
Central Western	137,147	132,974	139,486
Southwestern	68,250	66,120	61,155
Total Western Districts	321,778	312,590	322,707
Total All Roads	917,144	903,935	935,589
Commodities			
Grain and Grain Products	43,682	41,421	53,102
Live Stock	29,901	30,501	33,841
Coal	171,903	171,099	193,556
Coke	18,902	13,318	13,061
Forest Products	75,936	79,557	83,896
Ore	10,185	11,062	9,795
Merchandise l. c. l.	247,939	248,178	240,462
Miscellaneous	318,696	308,799	307,876
February 13	917,144	903,935	935,589
February 6	914,904	929,130	906,017
January 30	925,263	897,368	929,623
January 23	921,734	924,291	891,481
January 16	936,655	934,022	894,851
Cumulative Total Seven Weeks	6,264,058	6,290,014	6,135,876

For the period February 1 to 7 the surplus for the United States roads averaged 240,424 cars, including 93,207 coal cars and 101,714 box cars. The Canadian roads for the same period had a surplus of 24,145 cars, including 18,920 box cars and 300 coal cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended February 13 totalled 56,295 cars and showed little change from those of the previous week. Grain fell off slightly and small gains were made by pulpwood, other forest products, miscellaneous freight and coal, this last showing an increase in the eastern division of 947 cars and a decrease in the western division of 706 cars or a net gain of 241 cars. Compared with the same week last year the increase in the eastern division was 2,039 cars, miscellaneous freight accounting for 930 cars of it. Western division grain loading was lighter but other commodities heavier, making the net increase 436 cars.

	Total for Canada			Cumulative Totals to Date	
Commodities	Feb. 13, 1926	Feb. 6, 1926	Feb. 14, 1925	1926	1925
Grain and Grain Products	6,656	6,929	6,962	47,759	39,600
Live Stock	1,849	1,910	1,979	12,362	14,262
Coal	5,376	5,135	5,732	32,920	35,729
Coke	849	467	372	3,074	1,903
Lumber	2,999	2,945	3,138	17,300	16,698
Pulpwood	4,681	4,315	4,145	24,370	24,843
Pulp and Paper	2,742	2,773	2,359	16,103	12,733
Other Forest Products	3,971	3,722	3,665	20,705	19,407
Ore	1,475	1,431	1,075	8,496	6,803
Merchandise, l. c. l.	14,537	14,404	14,366	84,928	81,219
Miscellaneous	11,160	10,867	10,027	62,080	57,957
Total cars loaded	56,295	54,898	53,820	330,097	311,154
Total cars received from connections	35,990	36,632	38,012	206,931	203,550



A "1—C + C—1" Express Passenger Locomotive of the Chilean State Railways

Electric Locomotive Classification

New system proposed which is simple and does not have limitations of the Whyte system

By David C. Hershberger
General Engineer, Westinghouse Electric & Manufacturing Company

THE wheel and truck arrangement of an electric locomotive may be briefly indicated by a logical system of symbols, letters and numerals in proper arrangement.

It is desirable that such a system be so arranged that the classification information may be conveyed by either verbal or written means. This has been accomplished in steam locomotive practice by several systems, but the one most generally used by the American railroads is that originally proposed by F. M. Whyte.

The Whyte System has also been used for classifying the wheel arrangement of electric locomotives but has not proven satisfactory even when applied in modified form. The classification of the wheel and truck arrangement of electric locomotives is not as feasible with this system as with a system, using numerals, letters and signs. This is brought about by the fact that with electric motors a wide range of flexibility in wheel arrangement as between drivers and ponies, or guiding wheels, is possible, that handicaps the Whyte system, which was designed primarily for steam locomotives in which there is a more or less fixed relation between cylinder location and driving wheels.

One of the first mental acts performed by one viewing a locomotive or its photograph, is that of counting, the number of axles rather than the number of wheels. Therefore, the most simple method is that of designating the number of axles instead of the number of wheels, which eliminates the effort of considering two wheels per axle. The next feature considered is that of the number of driving axles as compared with the number of guiding and idle axles. In the Whyte system, numerals are used to represent both driving and non-driving axles which leaves more to the imagination than with a new "Standard System" using numerals for indicating non-driving axles and letters for driving axles.

The system here described is that tentatively accepted by the manufacturers of electric locomotives in the United States and is a modification of that used by continental European manufacturers.

Starting at the front end of locomotives designed for single end operation or at either end of engines built for double end operation, the wheels and truck connections are designated in their consecutive order. The letters represent the driving axles, the numerals the guiding or carrying axles and the signs the absence or presence of connection between trucks.

1. The number of adjacent driving axles (a) in a rigid wheelbase, or (b) on a truck, is represented by a letter selected according to its alphabetical order. Examples: B—Two driving axles. C—Three driving axles, etc.

2. The number of adjacent idle (non-driving) axles in a rigid wheelbase or a truck is represented by an arabic numeral. Example: 1—One idle axle. 2—Two idle axles, etc.

3. Trucks having both driving and idle axles in the same rigid wheel-base are designated by a letter and a numeral placed together in proper order. Example: 1-A —Truck with one idle and one driving axle. 1-B—Truck with one idle and two driving axles.

4. The connection between trucks or motive power units, constituting an articulated joint (a flexible connection through which propelling forces are transmitted to the drawbars) is indicated by a plus (+) sign. Example: B + B — Two trucks connected by an articulated joint.

5. The separation between swivel type trucks is represented by a minus (—) sign. Example: B — B — Locomotive with two swivel type trucks.

The separation between a rigid base of any group of main driving wheels and adjacent guiding or carrying

trucks not connected through an articulated joint is represented by a minus (—) sign. Example: 1 — D — 1, A locomotive with a guiding truck at each end, and four driving axles in a rigid wheelbase in the center.

When two or more motive power units with duplicate wheel arrangements are operated in multiple as a locomotive, the number of units is indicated by a numeral preceding the regular classification of one unit put in parenthesis. Example: 3 (1-D-1)—Three unit locomotive with two guiding axles and four driving axles on each unit.

This system indicates the following:

1. Number and location of driving axles and driving trucks.
2. Number and location of idle axles and guiding or carrying trucks.
3. Whether driving, guiding or carrying trucks are of the swivel or articulated type.
4. Number of idle and guiding axles in the same rigid wheel base.
5. Motive power units per locomotive.

Both the Whyte system and the Standard system of classification are given in Table I. It is clearly evident that as electric locomotives increase in size and length that the use of the Standard system becomes more advantageous.

The use of the system employing numerals only, is almost prohibitive when idle and driving or guiding and driving axles are included in the same wheelbase, as in items 19 and 25. The AC + CA type, item 25, employs a driving axle as a guiding axle, with all four axles in the same truck, but not in the same rigid wheelbase. A clear classification is impossible with the Whyte System.

No attempt has been made to indicate the number of cabs on any one motive power unit as this would complicate the system. Likewise the method of drive, whether side rod or individual motor drive, has been omitted for the sake of simplicity. The most simple system will find the most general use in the railroad field.

The table includes only electric locomotives which have been constructed or are in course of construction. Many other possible arrangements of wheels and trucks could be given if desired. Inspection of the table reveals that practically all of the electric locomotives are designed for operation from either end whereas the steam locomotives are designed for normal operation in only one direction.

The new system here described is equally well adapted to the classification of steam locomotive wheel arrangements. A system of classification which satisfied both classes of equipment might well be called the "Standard system" of locomotive classification.

The classifications of wheel arrangements have not heretofore indicated the application of a booster or auxiliary locomotive to trailing axles and tender trucks. These outfits operate only part time in supplying tractive effort and therefore should not carry the same designation as for idle axles and main driving axles. The Whyte system would require modification to care for this feature whereas the standard system here described will provide for this designation by using minor letters to represent boosters on steam locomotives. Thus for a Pacific type locomotive having a booster on the trailing axle the designation would be 2-C-a. When two axles on the tender are equipped with a booster the standard system of wheel classification is easily applied, using the letter C to represent them.

TABLE 1

ELECTRIC LOCOMOTIVE CLASSIFICATION

NO.	WHEEL ARRANGEMENT	SYMBOL WHITE SYSTEM	SYMBOL STANDARD SYSTEM
1	—OO	0— 4—0	B
2	—OOO	0— 6—0	C
3	—OOOO	0— 8—0	D
4	—OOOOO	0—10—0	E
5	—oOOo	2— 4—2	1—B—1
6	—oOOO	2— 6—0	1—C
7	—oOOOo	2— 6—2	1—C—1
8	—oOOOOo	2— 8—2	1—D—1
9	—oOOOOOo	2—10—2	1—E—1
10	—ooOOo	4— 4—2	2—B—1
11	—ooOOOo	4— 6—2	2—C—1
12	—ooOOOOo	4— 8—2	2—D—1
13	—ooOOoo	4— 4—4	2—B—2
14	—ooOOOoo	4— 6—4	2—C—2
15	—ooOOOOoo	4— 8—4	2—D—2
16	—OO—OO	0—4— 4—0	B—B
17	—OOO—OOO	0—6— 6—0	C—C
18	—OO+OO	0—4+ 4—0	B+B
19	—OO+oO	impossible——	B+1A
20	—oOO+OOo	2—4+ 4—2	1—B+B—1
21	—oOOo+OOo	2—4— 2+0—4—2	1—B—1+B—1
22	—OOO+OOO	0—6+ 6—0	C+C
23	—oOOO+OOOo	2—6+ 6—2	1—C+C—1
24	—oOOOo+oOOOo	2—6— 2+2—6—2	1—C—1+1—C—1
25	—OOOO+OOOO	impossible——	AC+CA
26	—ooOO+OOo	4—4+ 4—2	2—B+B—1
27	—ooOO+OOoo	4—4+ 4—4	2—B+B—2
28	—ooOOOo+oOOOoo	4—6— 2+2—6—4	2—C—1+1—C—2
29	—OO+OO+OO	0—4+ 4+4—0	B+B+B
30	—OO—OO+OO—OO	0—4— 4+4—4—0	B—B+B—B
31	—ooOO+OO+OO+OOoo	4—4+ 4+4+4—4	2—B+B+B+B—2
32	—oOO+OOOO+OOOO+OOo	2—4+ 8+8+4—2	1—B+D+D+B—1
33	—oOO+OOo+oOO+OOo	2—4+ 4—2+2—4+4—2	2(1—B+B—1)
34	—oOOOOo+oOOOOo	2—8— 2+2—8—2	2(1—D—1)
35	—oOOOOo+oOOOOo+oOOOOo	2—8— 2+2—8—2+2—8—2	3(1—D—1)

Operation of Three-Cylinder Engines on Wabash*

Improved train operation—Saving in fuel and water—No serious maintenance difficulties

By W. A. Pownall
Mechanical Engineer, Wabash, Decatur, Ill.

ABOUT a year ago 50 heavy Mikado type freight locomotives were built for the Wabash by the American Locomotive Company, Schenectady, N. Y. Before ordering these 50 engines considerable thought was given to the advantages claimed for the three-cylinder type. The performance of three-cylinder engines in service was investigated, and it was decided that while 45 of the 50 would be of the usual two-cylinder type the other five engines would be of the three-cylinder type.

The advantages which were expected from the three-cylinder engines as compared with the two-cylinder were briefly as follows:

Mechanical—Reduction of stresses on pistons, crossheads and rods due to dividing the load among three sets of parts instead of two. Less severe strains in main frames, axles and other parts of the locomotive because of more even distribution of the load or work transmitted from the cylinders through the axles, rods, wheels, etc. Less reciprocating weight to counterbalance, resulting in lessening the hammer blow on the rail as well as side thrust or "nosing" of the engine. Less damage to freight cars due to smoother starting of heavy trains.

Operating—Increased tonnage per train or increased speed with the same tonnage, and a saving in fuel and water. Less slipping of the engine when starting heavy trains or with slippery rail conditions. Decreased track and bridge maintenance due to lower dynamic augment and nosing of engines.

Close Adherence to Heavy Mikado Design

In preparing specifications for these engines the design of some Wabash heavy Mikados built in the previous year was closely followed, only such major changes being made as were necessary for the three-cylinder type for five of the lot. Arrangements were made for the other 45 to be readily convertible, if so desired at some future time, to three-cylinder engines with a minimum amount of change and expense. The principal change from the older, or class K-3 engines, consisted in increasing the distance between the second and third driver 13 in., the distance from the center of the cylinder to the engine truck wheel 4 in., and from the rear driver to the trailer 6 in., this last being due to an increase of 6 in. in firebox length rather than to any feature of the three-cylinder design. The 13-in. increase in distance between the second and third drivers was necessary in order not to have too short a middle main rod as well as to get proper angularity of this rod and clear the first and second axles. The engine truck was advanced 4 in. in order to provide necessary space in front for the valve gear for the center cylinder of the three-cylinder engine. The resultant increase in engine wheel base over the older engines was from 37 ft. 2 in. to 39 ft. 1 in., or 23 in. The main rod length was increased 10 in., and it was necessary to offset the center of the second driving axle in order to provide proper clearance for the center main rod.

These increases in wheel base cause little difference in appearance between the two and three-cylinder types. If at some time in the future the merits of the three-cylinder type justify conversion of the two-cylinder engines, it will be necessary to change only the cylinders, crossheads, valve gear, second and third driving axles and add necessary parts for the additional center cylinder.

These three designs of engine will be referred to as follows: class K-3 covers the two-cylinder type put in service early in 1924; class K-4 covers the 45, two-cylinder type, and class K-5 the five three-cylinder type, placed in service in 1925. The K-3 and K-4 have 27-in. by 32-in. cylinders while the K-5 has the two outer cylinders 23 in. by 32 in. and the center cylinder 23 in. by 28 in.

The K-4 and K-5 carry 5 lb. more boiler pressure than the K-3, and the tractive forces developed are: K-3, 60,416 lb.; K-4, 61,965 lb.; K-5, 64,637 lb.

For comparison the following table shows the principal dimensions of these three classes:

Class	Two-cylinder type		Three-cylinder type
	K-3	K-4	K-5
Cylinder diameter and stroke	27 in. by 32 in.	27 in. by 32 in.	2, 23 in. by 32 in. 1, 23 in. by 28 in.
Steam pressure	195 lb.	200 lb.	200 lb.
Diameter of drivers	64 in.	64 in.	64 in.
Tractive force, lb.	60,416	61,965	64,637
Factor of adhesion	3.94	4.01	3.87
Weights, lb.			
Drivers	238,000	248,450	251,215
Front truck	31,000	30,810	33,110
Trailer truck	56,000	54,470	56,165
Total engine	325,000	333,730	340,490
Tender loaded	196,500	194,500	194,500
Engine and tender	521,500	528,230	534,990
Cylinder horsepower	2,558	2,624	2,856
Heating surface, sq. ft.			
Firebox	273	309	309
Arch tube	32	32	32
Tubes	2,660	2,660	2,660
Flues	1,224	1,224	1,224
Total	4,189	4,225	4,225
Superheating	1,051	1,051	1,051
Grate area, sq. ft.	66.7	70.2	70.2
Mechanical stoker	Duplex	Duplex	Duplex

It will be noted that the K-5, with a slightly greater weight on drivers than the K-4, has an increase in tractive force of 2,672 lb., or 4.4 per cent, and a noticeably lower factor of adhesion. Thus, advantage has been taken of the feature of more even turning movement of the three-cylinder type of engine to use a lower factor of adhesion and obtain an increased tractive force or hauling capacity at slight increase in weight of engine and without having a "slippery" engine. The results in actual service will be touched on later.

The five three-cylinder engines were placed in service during April and May of 1925, and were assigned to fast

*Paper presented at the regular monthly meeting of the American Society of Mechanical Engineers, Chicago Section, held at Chicago, February 24. The evening was devoted to a discussion of construction, economy and test features of the three-cylinder locomotive, the other speakers being J. G. Blunt, mechanical engineer, American Locomotive Company, and E. L. Woodward, western mechanical editor, *Railway Age*.

merchandise freight trains running between St. Louis and Chicago. A good proportion of the distance is double track road, the ruling grade from St. Louis to Chicago is 0.6 per cent for the first 25 miles and 0.4 per cent for the balance of the way, and is 0.8 per cent, 0.7 per cent and 0.3 per cent from Chicago to St. Louis. Usually the heavy business is coal northbound, handled in 5,000-ton trains by 2-10-2 type engines, but the merchandise trains are necessarily of comparatively light tonnage in order to make the required speed, particularly to Chicago, where early morning deliveries must be made. Their average speed in motion is about 27 miles an hour. No attempt is being made to make long runs with these engines, and they are operated from East St. Louis, Ill., to Decatur, 108 miles, and from Decatur to Chicago, 168 miles. The northbound trains leave East St. Louis early in the evening and are due in Chicago, 276 miles away, at 4 o'clock the next morning. A few examples of these runs with the three-cylinder engines are shown here.

				Time, hrs. and mins.			Speed, m.p.h.	
From	Cars	Tons	Miles	Between terminals	Delay	In motion	In motion	Between terminals
St. Louis to Decatur..	50	2,019	108	3—50	— 6	3—44	28.9	28.2
Decatur to St. Louis..	75	2,430	108	4—53	—54	3—59	27.1	22.1
Decatur to St. Louis..	60	1,991	108	3—50	—27	3—23	31.9	28.2
Decatur to Chicago...	40	1,675	168	6—40	—55	5—45	29.2	25.2
Decatur to Chicago...	50	1,874	168	7—40	1—48	5—52	28.7	21.9
Decatur to Chicago...	52	2,046	168	6—32	1—25	5—07	32.8	25.7

If the trains are late out of the terminal, or meet with unusual delays, they make considerably higher speed than shown in this table in order to get in on time. I rather hesitate to use the term "high speed" here, for undoubtedly some of the railroad men present have in mind right now some faster trains on their roads. However, most of the roads have some time freight trains that they watch particularly, and if the conditions are in any way similar to ours, the performance figures herein furnished may give a basis of comparison.

During 1924, these same time freight trains were handled partly by the class K-3 engines, which are, as already shown, very similar to the three-cylinder engines, and by our class L-1 engines, which are the 2-10-2 type with 71,485 lb. tractive force. Fuel performance records are kept by individual engine and engineman, the amount of coal used being taken from engineman's coal tickets, and the train tonnage, etc., from the car accountant's records. Information taken from these fuel records and covering the performance of the three-cylinder engines from May to November, 1924, and for the two-cylinder engines for the same trains and corresponding months in 1925 shows the following comparison:

Class	L-1	K-3	K-5
Type	2-10-2	2-8-2	2-8-2
Cylinders	two	two	three
Total trips	368	677	1,078
Average tons per train	1,937	1,714	1,853
Lb. coal per 1,000 ton-miles	136.8	118.6	113.6
Per cent saving, three-cylinder.. Class K-5 over two-cylinder.. Class L-1	.....	.....	16.96 per cent
Per cent saving, three-cylinder.. Class K-5 over two-cylinder.. Class K-3	.....	.....	4.2 per cent

These records show that the three-cylinder class K-5 engine handled time freight trains averaging 8.1 per cent heavier than the trains handled by the class K-3 two-cylinder engine of similar proportions during the corresponding period of previous year, and at a coal consumption of 4.2 per cent less on the ton-mile basis. The average train for the three-cylinder class K-5 was 55 cars, as compared with 45 cars for the class K-3. As compared with the 2-10-2 type, the three-cylinder engine fuel performance was 16.96 per cent better. The less favorable fuel showing of the 2-10-2 engine was probably due in a measure to these engines being somewhat heavy for this particular class of service, which would result in an increased fuel rate on the ton-mile basis. However, the three-cylinder engines did the time freight work previously done by the two-cylinder 2-10-2 type and class K-3 engines, and at a fuel saving of 10.4 per cent over the combined performance of the two-cylinder engines. There would not be so much difference in point of cut-off between two and three-cylinder engines in fast freight service since with both types the cut-off is comparatively light, but with full tonnage trains the three-cylinder engine would work at materially less cut-off, resulting in a greater per cent of fuel saving than shown here for fast freight service.

The figure of 113.6 lb. of coal per 1,000 ton-miles may look rather high in the light of not infrequent instances of 60 to 80 lb. per 1,000 ton-miles in drag freight service, but it should be remembered that the high speed demanded in the time freight service and the fact that the average train is perhaps less than 50 per cent of the dead freight tonnage rating are against a favorable fuel performance. Our records given here are for similar service and show favorably for the three-cylinder engines.

Road Men Favor Three-Cylinder Type

These engines have now been in continuous service for about nine months. The opinions of the road foremen of engines and fuel supervisors have been asked for from time to time and I quote a few:

"At high or low speed the three-cylinder engine gets the train going quicker and rides better than the two-cylinder engine."

"It is easier for a three-cylinder engine to start a train without taking slack, and therefore causes less damage to draft gears."

"Any train that can be started can be run at a more uniform rate of speed and handled better over the hills."

"There is a saving in fuel and water over the two-cylinder engine."

"Train can be handled at 33 to 35 per cent cut-off where a two-cylinder would have to be worked at or near 50 per cent cut-off to handle same train."

Although the three-cylinder engines have been used mostly in this fast freight service, tonnage ratings for drag freight have been established from dynamometer car tests. A comparison of the rates thus established for the two-cylinder and three-cylinder engine is given here:

			Adjusted rating, tons			
From	To	Ruling grade, per cent	Two-cylinder	Three-cylinder	Car factor	Per cent increase three-cyl. over two-cyl.
East St. Louis	Worden, Ill.	0.6	4,130	4,360	7	5.6
Forrest, Ill.	Chicago	0.4	4,990	5,210	11	4.4
Chicago	Brisbane, Ill.	0.9	3,260	3,585	5	10.0
Brisbane, Ill.	Decatur, Ill.	0.7	3,670	4,175	6	13.8
Mt. Olive, Ill.	East St. Louis.	0.3	6,240	6,510	12	4.3

The three-cylinder engines have 4.4 per cent greater tractive force than the two-cylinder, and where the ruling grade was 0.4 per cent and the train was kept moving, the tonnage rating increase was the same as the increased tractive force, that is, 4.4 per cent. However, on the steeper grades, which on these districts are usually momentum grades, the three-cylinder engine seemed to keep the train moving at a better speed on the first part of the hill, and it was possible to establish ratings somewhat greater than the two-cylinder engine ratings than the difference in tractive force justified. For example, the rating from Chicago to Brisbane was increased 10 per cent and from Brisbane to Decatur 13.8 per cent.

The three-cylinder engine admittedly possesses advantages from the mechanical and operating standpoint, but a serious question in many minds was whether the addi-

tional maintenance or increase in mechanical failures due to the extra parts and unusual features of design would not more than offset these other advantages. Past experience with engines having relatively inaccessible parts has been unfavorable in that these parts did not receive proper attention, resulting in road failures and ultimately rather heavy maintenance costs.

Although our five engines of this type have only been in service about nine months, and have not yet been in the shop for classified repairs, there has thus far been, with the exception of some middle main rod trouble, no more running repair work than on similar size engines of the two-cylinder type. The following table shows the mileage these engines have made each month in freight service, and these mileages are good evidence that the engines have not been spending much time in engine-houses undergoing repairs.

MONTHLY MILEAGE OF THREE-CYLINDER LOCOMOTIVES ON THE WABASH

Month	No. 2600	No. 2601	No. 2602	No. 2603	No. 2604
May	5,572	3,598	5,205	3,260	....
June	4,504	2,978	5,166	4,552	4,578
July	4,968	4,641	4,398	4,384	5,160
August	5,664	4,644	4,992	4,532	2,668
September	4,464	4,798	4,764	4,769	2,182
October	6,264	5,028	4,522	4,854	3,552
November	5,616	3,840	4,376	4,684	4,800
December	5,002	4,850	3,360	4,560	4,530
Total	41,054	34,377	36,983	35,686	27,470
Average per month	5,132	4,297	4,623	4,461	3,924

Average per month per engine, 4,492 miles.

Twelve of the two-cylinder engines (class K-4) averaged 4,164 miles per month on an adjacent division.

The matter of suitable middle main rod design, particularly the back end, has given the builders some concern. After our engines had been in service about six weeks we had some reports that the back end of the middle main rod was pounding. We had had more or less success with the use of the floating bushing for the middle connection of side rods and had decided to use this type of bushing for the back end of the middle main rod for the three-cylinder engines. The bushing was applied in three sections, the back end of the main rod being necessarily of strap construction since the solid back end main rod could not be applied to the crank axle.

The sections of the brasses first applied were $\frac{1}{16}$ in. between the ends, or a total of $\frac{3}{16}$ in. for the three openings, and the brasses were also applied so as to allow $\frac{1}{8}$ in. side play. The result of this side play and the openings between the ends of the brass was more or less side slap and noise, which contributed to the complaints about rods pounding. The straps were attached to the rod with three bolts, and we had a little trouble on account of these bolts shearing, and had one actual engine failure due to a broken strap. However, this failed strap was traced to a defect in material. In view of this experience, we were not entirely satisfied with the floating bushing application, and it was decided to apply sectional brasses similar to the usual sectional brass used on the outside main rods. Two of the five engines were thus equipped. The other three engines continued to use the floating bushings, but with only 1/32 in. of lateral play and with the ends of the sections 1/32 in. apart instead of $\frac{1}{16}$ in., giving a total end clearance of 3/32 in. instead of $\frac{3}{16}$ in.

Water in Third Cylinder Caused Trouble

In the meantime we noticed more or less trouble with leaking of the center cylinder piston rod packing, and investigation indicate that this was due to water in the cylinder. There were two cylinder cocks for the center cylinder, and with this installation it was found that water not only accumulated in the passage leading to the cylinder, but could also accumulate in the back end of the inclined center cylinder. The cylinder cock location was changed to take care of this accumulation of water. The front cylinder cock was left in its original position. The back cylinder cock hole was plugged and the cylinder cock relocated so as to take the water from the lowest point of the center cylinder. The cylinder cocks are air operated so as to do away with the objection of long cylinder cock rigging from cab to cylinder.

Since making the change in cylinder cocks we have had little or no trouble with any of the main rods or with piston rod packing leaking, whether the engines are equipped with the sectional brass or with the original floating bushings. However, our records show that thus far the floating bushings have been renewed at an average mileage of 9,600, and frequently it has been advisable to renew the back end rod bolts at about the same interval. The two engines with the sectional brasses have had the brasses reduced on an average, once every 15,000 miles, the reduction each time being only 5/64 in. In view of the fact that floating bushings have to be renewed four or five times between shoppings, whereas the sectional brass may last from shopping to shopping with two or three "reductions," the expense of middle main rod brasses is considerably in favor of the sectional brass. This should not be construed as being against the floating bushings for outside rods, but is simply giving the results of our experience with different types of back end main rod brasses for center cylinder of our three-cylinder locomotives. We are inclined to favor the sectional brass rather than the floating bushing, but believe that what trouble we had with the main rod was probably due to water rather than to any improper or impractical design of main rod parts.

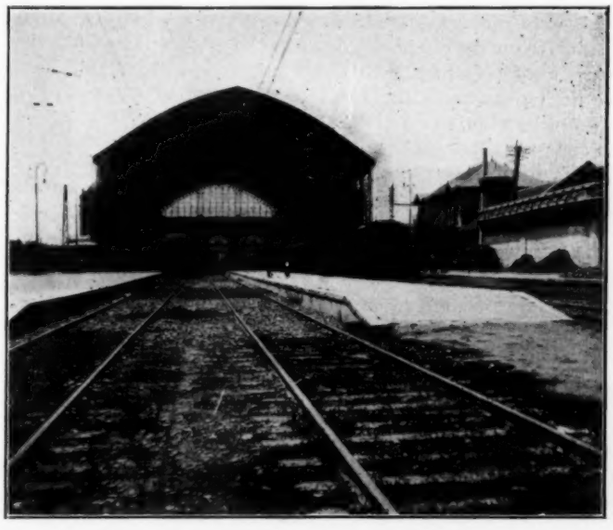
Summing up our experience with five locomotives of the three-cylinder type, I would say that:

1—Maintenance will not differ materially from the two-cylinder type. It will possibly be less over a long period.

2—From the standpoint of train operation the three-cylinder engines will do better than the two-cylinder type.

3—The three-cylinder engine will make a moderate saving in fuel and water in fast freight service, probably more in drag freight service.

4—Enginemen and supervisory forces are, in general, well satisfied with the three-cylinder locomotives.



Passenger Station, Chilean State Railways

Maintenance of Machinery in Car Shops*

By Z. B. Claypool
Safety Superintendent, St. Louis-San Francisco

MAINTENANCE of equipment in the car department on the lines which the speaker represents is done with labor on a piece work basis. In the locomotive department it is done with labor on an hour rate basis. It takes less supervision in the Car Department to secure quantity production but more supervision to secure quality production with safety to the employee. The reasons are obvious.

Comparing the eight months period this year with same period last year, the Frisco as a whole has reduced fatalities 60 per cent and the injuries 12.1 per cent. The locomotive department, considered by itself, shows a reduction in injuries of 19.1 per cent for the period. But the steel car repairers had an increase in the total injuries due to a much heavier car rebuilding program this year over last year.

A study of the accident frequency has shown that in the car department defective hand tools produced a great number of injuries. We had been using the customary and well known methods of educating the employees; illustrated bulletins, safety committeemen, disciplining employees, making spasmodic inspections for defective tools and so forth. But what brought final and lasting results was a joint weekly inspection of hand tools. The defective tools found are removed from service at the time of the inspection. Two of our divisions have gone so far as to make the employee sign up for defective tools found in his possession. As conditions became better from week to week, the inspectors became more technical and the standard was raised. What is considered a bad order tool today was a pretty good tool six months ago. No discipline is applied for what this special committee reports, but a similar condition found by a foreman calls for discipline. Ten days suspension from work for first offence is the usual sentence. Discipline applied in this manner usually has a very wholesome effect. The safety department does not administer or recommend discipline, but our shop safety committeemen have the power to stop any operation in the shop they deem unsafe until the arrival of the foreman in that department. The foreman will then make final decision. We got quicker and better response from the hourly rate workers in the locomotive department than we did from the piece workers in the car department and therefore decided upon the joint inspection program. The car man goes with the locomotive shopman through the locomotive shops and the locomotive shop man goes with the car man through the car shops. Both men are benefited by this joint inspection and one often points out hazards in a foreign department not seen by the man belonging in that department.

Eye Accidents: While we have reduced our eye injuries we have a long ways to travel. This is what we have accomplished thus far this year:

1. Changed standards on type of goggles used.
2. Furnished shopmen individual goggles.
3. Made each employee responsible for the safe keeping of his goggles.
4. Enumerated the operations during which goggles should be worn.
5. Now furnishing prescription goggles to employees with impaired vision.

Pneumatic Hammers: Injuries from use of pneumatic hammers has given us some concern. We have both inside and outside throttle lever handle pneumatic hammers. A piece worker is not going to walk to the end of a 50 ft. air hose line to shut off the air at the hose connection. We are attempting to teach the employee to remove the snap and plunger from the pneumatic hammer before laying it down; then when someone jerks the hose line, the snap and plunger will not shoot wild when the hammer is dragged across the floor and the throttle lever is moved by coming in contact with something. We had one car-man bucking rivets sustain a fractured jaw bone and lose several teeth when his partner operating the pneumatic hammer, took the hammer off the first rivet driven with the throttle lever not completely closed. Investigation after the accident revealed a small burr in the slot through which the throttle lever slides. This kept the throttle from going to complete closed position. This pneumatic hammer had just been drawn from the tool room for this job and either was put out in defective condition or was hit by something to produce this burr in the throttle lever slot before the job was started. This accident caused the renewal of two safety practices, viz., the tool room man makes running test on block of wood with pneumatic hammer before it is put out of tool room for service and the employee using hammer does the same before he starts driving rivets.

Air Motors: The exposed set screws on air motors have been eliminated, consequently the accidents from this source.

Nail Punctures: A ban has been placed on tennis shoes and thin soled shoes in our car shops.

Ladders and Scaffold Boards are inspected weekly by the special joint committees and injuries are done away with.

Blue Flag: Following two fatalities last year, the superintendent of motive power made each car foreman personally responsible for violation of the blue flag rule by his men. This seemed extreme but it produced results. Every foreman personally checked his men and those men who would not line up were dismissed.

Review of the Year

Our records of personal injuries include all minor and non-lost time accidents. Every case is formally investigated by the foreman in charge, cause determined and responsibility placed. The action taken is shown on the final write-up to the superintendent of motive power. All accidents are then discussed at the next regular monthly safety meeting and the injured employees are there as invited guests to be shown in a courteous manner just what we are trying to accomplish.

We have discontinued trying to sell the accident prevention idea on a humanitarian basis, and are selling safety as a good business proposition. You must prove your honesty and sincerity of purpose with the men in the overalls. A burst of "Paid to produce Sentimentality" is easily recognized and produces skepticism. If you have the confidence of the men they will go along with you on any safety proposition provided their boss is already sold on it; otherwise you are wasting time on the rank and file.

The term "Safety First" is a misnomer. Safety is not and should not be first in industry. We are placing honesty and integrity before safety. We are beginning to substitute the term "accident prevention" for the term safety first. Would it not seem well to call this meeting the Railroad Section of the "National Accident Prevention Congress"?

We are making a monthly statement of all personal injuries classified as to locations. This information is available by about the fifth of the month and the weak spots can receive prompt attention.

We are inaugurating a new statement showing hazards divided as between unsafe physical conditions and unsafe practices. We wish to establish the exact correlation between hazards reported and accidents reported.

*Abstract of a paper read before the National Safety Council, Cleveland, Ohio, September 30.

Hooper Criticises New Labor Bill

Chairman of board to be abolished—Says new legislation is backward step

A STATEMENT containing a vigorous criticism of the new labor bill and a defense of the present law was filed with the House committee on interstate commerce by Ben W. Hooper, chairman of the Railroad Labor Board, after the hearings before the committee had been closed, and was released for newspaper publication on February 22 after the bill had been reported to the House on February 19 and the Senate committee had voted to report it in the same form. Stating that his views were presented as those of "an individual citizen with no interest in the subject matter other than that of the general public," that he had not asked to appear before any committee, and that "the present condition of my health is such that I have no intention of being an aspirant for reappointment on the Railroad Labor Board at the expiration of my time in April," Mr. Hooper said that while the bill may be considered wise from the viewpoint of temporary political expediency, "it undoubtedly contains the certainty of calamitous results to the country." An abstract of his statement follows:

The measure before Congress has been heralded to the public as a new and remarkable panacea for railroad labor troubles and a guaranty against strikes. The public has been asked to accept it without inspection on account of the fact that it embodies the voluntary joint agreement of the carriers and the employees. It has been sought to forestall the inquisitiveness of the timid by giving the bill the similitude of an administration measure, by what authority I know not. Now let me lay down a few propositions for subsequent substantiation:

(1) The bill does not represent the voluntary agreement of the carriers and the employees. (2) It does not reflect the judgment of the representatives of the carriers who drafted it. (3) No representative of the public participated in the drafting of the measure, no member of Congress had a hand in it, and it is not the result of any public demand. (4) It wipes out such measures of public protection as the present law affords and substitutes nothing for it. (5) It involves a regrettable and disastrous backward step in legislation, and reestablishes a system that has already been tried and thoroughly discredited. (6) It constitutes the first instance in the history of this country where a minority comparatively insignificant in number, but well organized and highly vocal, has controlled by persistent political pressure the drafting of a measure vitally affecting every man, woman, and child in the United States, and has then told Congress that if one jot or tittle of the bill is changed its proponents will feel themselves absolved from the observance of the law. (7) Contrary to some of the loose statements made before the Congressional committees, the Railroad Labor Board has not broken down, in any sense, but it and the law under which it operates are more firmly established in public favor today than ever before. (8) The present law in the light of six years of practical experience and in view of one Supreme Court decision can be perfected by a very simple amendment to mean what the enacting Congress intended, and it should otherwise be left unmolested.

The Reversal of Position Caused by Political Pressure

Two years ago the representatives of the carriers, and some of them the very same men who directly assisted in drafting the measure now under consideration, came before a Congressional committee and presented the strongest and most positive arguments in favor of the basic principles and theory of the labor provisions of the present law, and against the theory and principles which underlie the bill to which they now submit. The foregoing statement cannot be disposed of by saying that these carriers opposed the Howell-Barkley bill merely on account of certain radical provisions it contained which are not embraced in the pending bill. It is true that they did object to certain provisions in that measure that are not in this one. But these gentlemen advocated the Transportation Act of 1920, with its provision for investigation and decision of disputes by a permanent tribunal, and condemned as weak and ineffective the theory of mediation and conciliation, with voluntary arbitration by "picked-up" jurors of arbitration.

It is folly to answer that these gentlemen of life-long experience in the handling of labor questions have so suddenly reversed their fixed convictions. As a matter of fact, they do not come before the present Congress and retract one word that they uttered here two years ago. In substance and effect they merely say that regardless of what their views were two years ago and what they are now, a majority of them have agreed to this bill.

Here is what has happened in this matter and this is how the public interests are being sacrificed upon the altar of political expediency. The leaders of the railroad labor unions have transformed themselves into a political organization. From the time the Transportation Act was passed and, particularly, after the Railroad Labor Board had demonstrated that it would not only increase wages, but in proper cases, would also reduce them, all the power, all the resources of these organizations were brought to bear for the destruction of that feature of the Transportation Act which gives the public the genuine right actually to participate in the adjustment of railroad labor disputes. This warfare has been waged from every angle and continuous, unrelenting political pressure has been applied in Washington.

This pressure could not affect the railway executives directly, but, if it reached those in political power, they might in turn put the pressure on the railway executives effectively. The Howell-Barkley bill, which was a terrible measure and would have put the railroads and the public under the heels of a legalized labor monopoly that would have ruined this country, alarmed the railway executives by the considerable support it received. Upon its failure, the leaders of this labor movement took advantage of the expression in the President's message which suggested that the carriers and the employees agree upon a law for the settlement of their disputes. It is true that the President suggested that the public interests should be safeguarded in such agreement, but the labor leaders knew that the public would not be represented in the formulation of such an agreed bill and the carriers knew that no agreement could possibly be reached that did not involve the practical elimination of the public.

In his testimony in regard to the pending measure, Mr. Thom, the counsel for the railway executives, guardedly states these facts in explanation of the changed attitude of the carriers. I quote from him: "The President has twice invited the carriers and the employees to agree upon a *substitute method.* (Italics mine.) In the House, by signature of 150 members, a bill abolishing the Labor Board (the Howell-Barkley bill) has been taken from the committee." But in spite of these facts, the carriers continued to hold out against making an agreement that would discredit all their former views and expressions.

Then something happened that knocked the props from under their resolution. It cannot be stated more delicately and, at the same time, more luminously than by quoting from the words of Mr. D. B. Robertson, president of the Brotherhood of Locomotive Firemen and Enginemen, who seems to be in charge of the labor end of the proposed bill. Certainly he knows what happened. From his report in the December, 1925, issue of his organization's magazine this excerpt is taken, but the italics are mine:

"Repeal of Title III of the Transportation Act.

"In my report and that of Assistant President Shea to the Thirtieth Convention (pages 36 to 66), the question of the repeal of Title III of the Transportation Act was covered in detail. *These reports showed that a conference had been held with the Hon. James J. Davis, Secretary of Labor, preliminary to the holding of a series of conferences with the secretary and his staff in an effort to arrive at a mutual understanding with regard to the repeal of Title III of the Transportation Act. This course was adopted after the representatives of the railroads had declined to meet with the representatives of the organizations for the purpose of harmonizing their views upon this question.*

"Subsequent to the adjournment of our Thirtieth Convention *and prior to the beginning of conferences with the Secretary of Labor, an opportunity was presented for a conference between representatives of the carriers and organizations. Conferences have, therefore been held* between the carrier and organization representatives, intermittently, since August 13."

No comment is necessary other than to venture the suggestion that the railway executives would have been blind not to perceive that a bill cooked up under such circumstances would doubtless be much less acceptable than one which they assisted in drafting.

Hence, we have H. R. 7180,* ostensibly an agreed bill of the

* The bill was reintroduced in the House as H. R. 9463, after some minor amendments by the committee on interstate and foreign commerce.

railway executives, but in reality the bill of the labor organizations forced upon the executives by political pressure. It contains the one main object for which the labor leaders have propagandized for the last six years, namely, the elimination of the public from any potential voice in the adjustment of labor troubles threatening the destruction of railway transportation so essential to the life of the Nation.

The pending bill provides:

(1) In different verbiage the same requirement as the present law for the settlement of disputes by conference and negotiation between the parties. (2) The establishment by agreement of adjustment boards comprised of representatives of the parties with jurisdiction of minor disputes only. (3) For the establishment of no board whatever having the jurisdiction to investigate and decide disputes concerning wages and working rules, the questions which ordinarily provoke strikes. (4) It provides for arbitration boards to pass upon questions of wages and working conditions, *whenever both parties can be induced to agree to arbitrate, but that the refusal of either party to arbitrate shall not be construed as a violation of any legal obligation.* (5) It sets up a Board of Mediation composed of five members, without any power to pass upon disputes, but only with the power to persuade, plead, pat on the back, and suggest compromises having no relation to the merits of the controversy or the rights of the public. (6) It provides that when mediation has failed and arbitration been rejected and a strike is imminent the Mediation Board shall call the attention of the President of the United States to the matter, who may in his discretion, appoint a board called an emergency board, which shall investigate the facts and within thirty days report thereon to the President.

It will thus be seen that H. R. 7180 proposes to abolish the public investigation and decision of disputes by an impartial tripartisan board and to substitute therefor the system of mediation and conciliation. The latter system is necessarily secret in its methods. It depends for its success not only on keeping the public in the dark but also to a great extent on keeping each party from knowing all that is said by the other to the mediator about the matter. It affords ample time for secret preparations for a strike, during which the public is not permitted to learn anything at all in an authentic way concerning the controversy.

The Mediation Board is not authorized to gather facts, procure testimony or take any step toward ascertaining the merits of the controversy. Its business is not to pass judgment on the dispute or to afford the public an opportunity to do so. Its only function is to try to horse-jockey the disputants into some sort of a compromise agreement. There are innumerable questions which can not be justly compromised. If a carrier seeks to make an unjustifiable wage reduction or the employees seek an undeserved wage increase, it is not in the interest of the public to have the question settled upon the basis of compromise, by ascertaining how little of justice one party will accept or how much of injustice the other will tolerate.

If the moral suasion of the Mediation Board is found to be too weak a solvent for the flinty contentions of a labor dispute, it then becomes the duty of the board to attempt to persuade both parties to arbitrate.

There is no assurance that the labor organizations will submit to arbitration in important cases. Their submission will depend largely upon their confidence, or the lack of it, in their economic power. This statement is not simply prophetic but historic. It is a matter of common knowledge that mediation and arbitration have both been spurned and rejected by some of the stronger labor organizations and, in other instances, the labor organizations have submitted their own contentions to arbitration and refused to permit the submission of the counter-contentions of the carriers. As already stated, there is nothing in this mediation and arbitration plan upon which its proponents can apply for a copyright. It has been tried and proven a failure. Moreover, it reached the point where it was denounced and renounced by some of these very organizations that now offer it as a cure-all.

After the labor organizations had rejected meditation under the Newlands act in 1916, and the mediation of the President of the United States, and had set the day and hour for a national strike, and the President and Congress in the midst of a political campaign had hastily enacted the Adamson law to avoid a strike, President Wilson went before the December Congress following with positive and constructive recommendations for legislation. He recommended, among other things, the enactment of a law forbidding the calling of a railroad strike prior to an investigation of the merits of the case by a government commission, and, in that connection, said: "I can see nothing in that proposition but the justifiable safeguarding by society of the necessary processes of its very life."

Immediately afterward, a number of bills were introduced in Congress for the purpose of amending the Adamson law and the Newlands act, and these measures were given serious consideration for several months until the entrance of our country into the war and the subsequent assumption of government control of the railroads. Renewed consideration of this subject by Congress began early in the year 1919 and continued till the enactment of the Transportation Act, February 28, 1920. This act was passed by the votes of both Republican and Democrats in a Republican Congress and was approved by President Wilson. It was the result of nearly four years of intermittent discussion in and out of Congress and of several months of exhaustive direct consideration by the President and both branches of Congress. It originated in Congress and not outside. It was not handed to Congress ready-made with the admonition not to tighten a button or pull out a basting thread. The labor provisions of the Transportation Act were the direct result of the abandonment and failure of the very system now sought to be re-enacted.

The Gesture to the Public

But it is said that this bill contains a provision that gives the public the same degree of information and the same opportunity to bring public sentiment to bear on a strike situation that the Transportation Act does. The provision referred to is that which creates the Emergency Board, or fact-finding board as it is sometimes called. This provision legalizes one of the worst practices existent in this country and that is the practice of carrying every strike situation and dumping it on the front steps of the White House. Whenever a President steps out and totes in a strike situation so deposited, it ceases to be a labor dispute and immediately becomes a political issue. The land resounds with the obstreperous cries of "why doesn't the President do this and why doesn't he do that?"

Moreover, the so-called fact-finding commission is not given any facilities under this bill to find the facts. It is not even given the power to summon a witness and is limited to 30 days in which to report. When questioned as to how such a board would operate, some one has explained to the Senate committee that it would be a sort of a sublimated mediation board. The labor representatives are right in their conclusion that it would serve no useful purpose and would probably prevent the successful handling of a dispute by mediation and arbitration, by encouraging one or the other of the parties to hold out till the White House was reached.

It by no means serves the same purpose attained by the open, public hearing of the contestants and their witnesses and the decision of the dispute on its merits, as is provided in the present law. Such a proceeding can not degenerate into a political issue, and it may be said here that the Railroad Labor Board has heretofore been singularly free from all political influences.

The Anti-Strike Provision

There is a weak, evasive provision in the pending bill which was apparently intended to be interpreted by the public as inhibiting a strike until all the machinery of the law had operated. It reads as follows:

> "After the creation of such board and for thirty days after such board had made its report to the President, no change, except by agreement, shall be made by the parties to the controversy in the conditions out of which the dispute arose."

It seems, however, that the proponents of the measure have admitted before the Senate committee that the provisions quoted is not intended to be construed as a temporary inhibition of strikes. This or any other bill should contain such a provision in clear and unequivocal language, just as President Wilson stated in the quotation from him hereinbefore set out.

A Few Facts About the Labor Board

The statement in varying forms has been made both before the Senate and the House committees that the Railroad Labor Board had collapsed and lost the confidence of the public. These statements reflect an entire misconception of the situation. Dependent on public opinion as the board is for the enforcement of its decisions, it has been deemed by me highly essential to keep tab on public sentiment as to the board and its work. My observation justifies the statement that the Railroad Labor Board has steadily gained in the confidence of the public for the last five years until popular opposition to it has practically vanished.

Five years ago it was almost an everyday occurrence that some convention or association of citizens, shippers, producers or business men passed resolutions asking for the abolishment of the Labor Board. It is interesting to note that in every case the opposition was predicated on the alleged weakness of the law, the fact that it had no teeth and that the board's decisions were not enforcible. There was also an undercurrent of feeling after the big wage increase of 1920 that the Labor Board was merely a permanent wage-raising agency as the arbitration boards had all been temporary ones. When it was discovered that the board heard cases on their merits and rendered decisions reducing wages as well as those increasing them, and that those decisions stood up and were made effective, public sentiment began to change in favor of the law and the board.

This development continued until for the last three years there has been no opposition of any importance to the board from any section of the public. There is no such sentiment in any considerable measure anywhere in the United States. No bodies of citizens are assailing the Labor Board and its work before Congress. If the people were heard here on this matter, their demand would be that the law be strengthened and not weakened as is proposed. There is no disguising the fact that the only fight that has ever been made for the repeal of the law has been made by the labor bodies who are anxious to emasculate it by eliminating the provision for the public investigation of disputes by an experienced and permanent public tribunal.

Railroad labor is more prosperous, more contented, more efficient right at this moment than it ever has been before, and the purchasing power of its wage is higher than at any previous time. Why then this onslaught on the Transportation Act? Because the leaders of some of the more powerful organizations consider it better union policy to secure their rights by economic power than by adjudication and, perhaps, some of them think that they can fight out more than they are now getting by peaceful methods.

What about the statement that the board has collapsed and is no longer resorted to, etc.? The following condensed statement of the board's work is sufficient answer to that.

"VOLUME OF WORK

"From the date of its establishment to December 31, 1925, 13,941 disputes had been referred to the board. Of this number 6,006 were of a local nature, affecting individual roads and their employees in one or more classes of service, or possibly two or three railroads at one point; and 7,935 were of a general nature, affecting large groups of railroads and their employees in any or all classes of service, such as general requests for wage increases or wage decreases or general revision of rules governing working conditions. The board during this period disposed of 13,447 of these submissions, 5,549 of which were of local nature, and 7,898 of general nature. Of the total number of disputes, 912 did not reach the status of regularly docketed cases."

The Labor Board has built up a large body of precedents in its seven volumes of decisions and it has acquired a vast deal of valuable information for use in its future work. The layman can hardly realize the complex nature of the labor rules and practices on the railroads of our country, and no temporary arbitration board can get any adequate conception of them. *A permanent board should know the relationship of the question it is deciding to the entire wage and rules structure in all branches of the service, but an arbitration board can not possibly have this advantage and can not act justly and intelligently without it.* This is why labor leaders condemned the results of mediation and arbitration and why they would now oppose their reestablishment were it not for their desperate desire to rid themselves of public investigation of disputes.

Upon the whole, it can be said that this country never so nearly approximated immunity from railroad strikes for a six-year period as it has since 1920, and never was there a period that contained so many possibilities of strikes. It is also to the point to remember that no strike has ever been won after a fair hearing of both disputants and a decision by the Labor Board. This fact diminishes the number of strikes and that is the paramount purpose of the law.

All that should be done to the labor provisions of the Transportation Act at this time is the adoption of a simple amendment that will make the law mean just what the Congress that enacted it intended it to mean. That Congress did not intend to make strikes unlawful. When the Senate included such a provision, it was stricken out in conference. Congress did intend to set up a permanent board fairly representing the parties and the public and open every day in the year to give public hearing to railroad labor disputes, affording both parties the amplest opportunity to present their respective contentions, and then to have said board render a public decision of the controversy on its merits.

Congress said that such disputes *shall* be brought to the Labor Board or, in proper cases, to an adjustment board and that they *shall* be decided by the board. Then, after this full publicity and this deliberate decision by a permanent and experienced tribunal, either party, in its own discretion and at its own peril, may violate the decision. Congress meant that this procedure up to and including the board's decision should be mandatory. Congress did not say that either party *may* bring a dispute to the board but it said they *shall* present the dispute and, if both fail to do so, the board is empowered to assume jurisdiction.

This provision of the law was accepted by both carriers and employee organizations and was fully complied with for a long time. Class I carriers, practically without exception, recognized this provision as mandatory and came before the board with their controversies. The Pennsylvania Railroad evaded the jurisdiction of the board in many instances by declaring that the complaining organizations did not in fact represent its employees and that there was therefore no dispute of which the board had jurisdiction, but it did not contend before the board that it was not required by the law to appear when a case was properly submitted by the authorized representatives of its employees.

On the other hand, the organizations of the employees adhered to the theory that the duty of appearing before the board and going through the hearing was imperative. The Federated Shop Crafts, for example, did not strike until this provision of the law had been complied with. Occasionally, when a strike ballot was put out by an organization, the board upon its own initiative or upon the request of the carrier would cite the parties for a hearing of the dispute, and invariably the employees appeared and presented their cases to the board.

The first exception to this practice upon the part of the employees was a little more than a year ago when the organizations of the engineers and firemen refused to come before the board and participate in a hearing of the wage and rules dispute between them and the western railroads. They gave through their counsel various technical reasons for their refusal, but the real reason was that they had initiated a nation-wide movement for a wage increase and had decided that they would not submit to a hearing before the Labor Board. This was the very first instance where either carrier or labor union had ever taken such a position.

This wage movement was started on the New York Central Railroad, which was selected for the tactical reason that it was prosperous and that the competition of the Pennsylvania and the Baltimore & Ohio was so sharp that the New York Central could not afford a strike. After emphatically refusing any increase in wages, the carrier suddenly and unexpectedly capitulated. *Mr. John G. Walber, vice-president of the New York Central, subsequently testified before the Labor Board in the clerks' wage case that the increase was granted to the engineers and firemen solely to prevent a strike and that it would also have granted an increase to the clerks, if their economic strength—their strike power—had been as great as that of the engineers and firemen.* The eastern roads as a rule rapidly fell in line with the New York Central and gave the wage increase. The western roads countered with a demand for the revision of certain working rules peculiar to the western territory, and alleged to be arbitrary, uneconomic and burdensome. They practically agreed to the wage increase conditioned on certain modifications of the rules.

When the board heard these western roads, they made a strong presentation of their contentions as to rules. The labor organizations, as already stated, declined to appear as parties and refused to come as witnesses and furnish the board evidence as to their contentions in regard to the disputed rules. The board, however, had on file in a previous case voluminous testimony from these organizations on the subject of their working rules, and after much investigation rendered a decision granting the wage increase already conceded by the carriers, but also granting a revision of several of the rules which the board found to be, in fact, unreasonable, and uneconomic and unjust to the carriers and the public.

To shorten this recital, the two labor organizations then abandoned the concerted negotiations and centered their fire on the Southern Pacific (Pacific System) just as they had on the New York Central in the East. That carrier insisted on applying the board's decision, and the employees refused to recognize the board's decision and demanded the wage increase without any modification whatever of rules. It appeared that no agreement could be reached and it is my information that the management was clearing the decks for the expected strike when the financial powers behind the road give the quick order to surrender. The carrier thereupon granted the wage increase and threw away the rules revision for which it had been the principal contender among all the 45 western roads.

This entire transaction represents the only instance in which the employees have choked a wage increase out of the carriers by a strike threat since the board came into existence. In my judgment, this could not have been brought about if the employees had appeared before the board and under the eyes of the public presented their contentions and lost the decision. It may be observed just here that the conductors and trainmen have never taken this attitude toward the law, and, as a matter of fact, the engineers and firemen have submitted cases to the board since this occurred.

The farmers of the West and the people of the country at large may as well recognize the fact that increased prosperity of the railroads will afford them no hope of reduced freight rates as long as a few powerful labor organizations can take roundance on the law and absorb the increased railway income by forced wage increases. This process can be halted only by an application by the public of some sort of stiffening process to some political backbones throughout the country. Nor can the weaker classes of employees expect to receive anything more than the fragments left by the powerful, if force is to prevail.

The Supreme Court Decision

Shortly after the occurrence just related, the Supreme Court in cases of the Federated Shop Crafts and the Railway Clerks versus the Pennsylvania Railroad rendered the only court decision that has weakened Title III of the Transportation Act. The court held in those cases that the provision of the law which says that carriers and their employees *shall* submit their disputes to the Labor Board is not mandatory, that the word *shall* has only the effect of *may*, because their is no penalty of any kind

attached for its enforcement. This decision makes such a breach in the law as to necessitate amendment.

Recommendations

Recapitulating briefly, my recommendation would be that the public, the employees and the carriers can be best served as follows:

1. Perpetuate the Labor Board. 2. Appoint to its membership men to represent the public who will not be swayed by politics or by the desire to favor either the carriers or the men. 3. Appoint to represent the carriers and the employees the strongest, most experienced, and most skilful men that they respectively nominate, men whose ability as schedule experts will always command the confidence of the interests from which they come and will always afford the public group the technical information indispensable to their successful functioning. I am convinced by experience that the presence of these expert representatives on the Labor Board could not safely be dispensed with. 4. Enable the Labor Board to pass on any dispute as to the establishment of an adjustment board. 5. Make the submission of disputes to the Labor Board absolutely mandatory and attach appropriate penalties applicable alike to both parties to prevent arbitrary action by either until the public hearing and decision has been had. Make the language as clear and understandable as that of the Canadian statute.

There is nothing in such a provision to shrink from. As Presidents Roosevelt and Wilson both contended, it is a fair and practical protection of the public. Certainly, it violates no right of any individual.

I have drafted an amendatory bill embodying the above features. It might be varied in some respects to increase its effectiveness and it should doubtless have penalties added in behalf of the public as well as the provision for damages to the parties. It is brief and simple. It amply cares for the rights of the men, and it protects the interests of the public. I append a copy of it below. Until such amendments are incorporated in the present law, curing the defects that have been developed, it can not be said that the theory and principles which Congress wrote into the Transportation Act have really been given an adequate trial.

I am well aware of the fact that when a man expresses views so antagonistic to railroad strikes as those entertained by me, he is bludgeoned over the head as an enemy of organized labor. This is a mistaken conception. I can say as my service terminates on the Railroad Labor Board that practically all the leading decisions for the last five years that have involved the fundamental questions of the right of men to organize and to function freely as organizations, as well as the decisions on the all-important contract question, were written by my hand.

Notwithstanding this, I am of the opinion that railroad strikes, depending as they do for their success on the amount of suffering they can inflict on the public, should not be tolerated in this land of complex and stupendous railway transportation where the lives and property of millions of innocent people are at stake.

Admittedly, in order to get rid of the present law, the labor organizations may avoid strikes, perhaps till one congressional election is past. This bill may therefore be considered wise from the viewpoint of temporary political expediency; but from the standpoint of a statesman-like vision of the future, it undoubtedly contains the certainty of calamitous results to the country. You will not find a man in or out of the railroad service, who is familiar with the history and policy of the train service organizations, who will express the belief that, if a period of depression should come necessitating a reduction in wages, these organizations would submit either to mediation or arbitration.

Transportation Conditions Are Favorable in Florida

WASHINGTON, D. C.

M. J. GORMLEY, chairman of the Car Service Division of the American Railway Association, has issued a memorandum regarding conditions in Florida. After citing some figures showing the unprecedented growth, he said in part:

It is needless to say that railroads can not build locomotives, lay track, and expand their machine as fast or in the same proportion to match a growth such as indicated by these statements. An individual can decide that he desires to build a house today and the lumber yard can order the material this afternoon, but a railroad can not so speedily increase its capacity, its personnel or its ability, to meet such extraordinary demands. I believe this fact is well understood. Nevertheless the railroads of Florida did, commencing three years ago, adopt a tremendous expansion program in anticipation of this public demand. Additional lines have been extended into many parts of the state. Present facilities have been expanded and improved, and in one case an entire railroad is laying a second main line and reconstructing practically all of its physical facilities. The completion of such programs necessarily depends upon the receipt of materials and the sufficiency of labor supply. It should also be understood that much of the construction on the railroads has taken place during the very peak of the building and real estate expansion of the state.

Some criticism has appeared in the public press as to railroad performance in Florida. It is acknowledged that traffic has been delayed by carriers, switching service has not been normal and unloading has been delayed by receivers. People have established business houses in Florida during the past year who never before dreamed of this possibility,—hence the number of receivers supplying the necessities of life in that state has increased many times. Shippers have sent goods to Florida unconsigned with no idea at the time where they were going or who the ultimate purchasers would be. Receivers at certain points in the state have ordered beyond their current needs and were unable to promptly unload traffic. Notwithstanding all of these factors and obstacles which represent the natural development of a tremendous prosperity, the average business house of that state has experienced the greatest turnover of commodities, and the actual volume of business itself has been the greatest in the history of the state. Disregarding individual instances of carrier or receiver disability and viewing the situation from the standpoint of the business interests as a whole and the prosperity of the people, every factor only substantiates a positive refutation of this criticism. The railroads have not been able to handle all of the business that each shipper and receiver called for at the time specified. Any physical transportation machine which could have done so would have automatically acknowledged an over expansion of facilities for many prior years. Nevertheless instances of local disability are trivial as contrasted with what the railroads have done in contribution to the prosperity and upbuilding of that state:

Railroad "A", serving many parts of the state of Florida, received 222,553 cars from connections in 1920; 384,000 in 1924 and 446,967 cars in 1925.

Railroad "B", also serving many sections of Florida, received 285,950 cars from connections in 1920; 311,890 cars in 1924 and 375,148 cars in 1925.

Railroad "C", operating entirely within the state of Florida, received 33,984 cars from connections in 1920; 68,459 cars in 1924 and 88,968 cars in 1925.

Notwithstanding that they were unable to accept all of the traffic during the peak, when shippers and receivers desired, it can truthfully be said that these railroads have made a very major contribution to the state's growth during the very period of their own expansion when operation was hampered by the transport of material and the construction of their own lines. The influx of traffic into Florida necessitated transportation control and this was brought about by the so-called state-wide embargo.

In order to cope with the necessities of the Florida situation, the Southeast Advisory Board organized its Florida Division. Representing an acute receivers' problem as well as the situations presented by the production of commodities within the state, the Division was organized in such a manner as to not only represent the production and shipment of commodities from that state but also to create and interpret a definite plan for the handling of business moving into the state under the embargo.

The first requisite in the solution of the transportation situation of that state is a definite plan of control. This is being well established and understood. As quickly as each terminal district is fully organized their committees have actively engaged in the problem of more prompt unloading of equipment and each is being assisted by a responsible car service agent of the Car Service Division.

There is no particular panacea for any conditions where the economic prosperity of a region overcomes individuals and carriers. The element of time plus a well defined organization of the public on the one hand, and the carriers on the other, will automatically solve that condition.

The co-operation of all board members and shippers in other territory is earnestly solicited in carrying out in an orderly manner the plans and rules of the Florida Division of the Southeast Advisory Board.

SOUTHERN PACIFIC division and shop employees made 4,486 safety suggestions during 1925. Of this number, 3,248 or 72 per cent were approved and put into effect by the safety committees. Of the remainder 435 were still being considered at the end of the year.

Lackawanna Maintains Earnings

In spite of four-month anthracite suspension in 1925 *earns dividends with fair margin*

ONE of the especially interesting features of railway operation in 1925 was the manner in which the earnings of the anthracite carriers were maintained in spite of the four months suspension (figuring to the end of the year) in anthracite coal mining. In days gone by a suspension of this kind would have proved a great hardship to the carriers involved. The anthracite carriers, however, are in a strategic location in trunk line territory, forming, as they do, routes or parts of routes between the Niagara frontier on the one hand and New York, Philadelphia or New England on the other. Furthermore, their managements were skilful enough to realize this advantage many years ago and they solicited and built up a large and lucrative high grade miscellaneous traffic which they have since cultivated and expanded by means of excellent time freight schedules and in general a praiseworthy expedition of freight transportation

The Delaware, Lackawanna & Western

service. In the commercial world this would be called "merchandising," but, whatever it is, it stood the anthracite carriers in good stead when their bread and butter traffic was eliminated in the fall and winter by the inability of the operators and miners to agree on terms of keeping the mines at work. In the old days, also, the railroads owned the coal mines. They do not own them today. This may be a disadvantage from the standpoint of net earnings when the mines are operating but the railroads now do not have to bear the mining losses when the mines are idle.

Example of New Status of Anthracite Carriers

The Delaware, Lackawanna & Western is as good an example as any of the new status of the anthracite carriers. In spite of the fact that for the last four months of the year there was no anthracite traffic, the road came through the year with net corporate income equivalent to $8.53 a share on its outstanding 1,688,822 shares of $50 par value stock. In 1924 the net corporate income was equivalent to $8.67 a share and in 1923 to $7.32 a share. More exactly the 1925 corporate income available for dividends was $14,430,195 which compared with $14,668,868 in 1924 and with $12,378,001 in 1923. The Lackawanna pays regular dividends of $6 a share, or 12 per cent, annually with extra dividends totaling $1 a share, or a total of 14 per cent. These dividends total about $11,821,754 annually.

Peculiar Corporate Structure

The Lackawanna has a somewhat peculiar corporate structure. First of all, it has outstanding practically no funded debt and its annual interest charges total only about $6,000. On the other hand, it pays out each year about $6,500,000 in the form of rents for leased roads. This follows because the company owns only a small portion of the mileage which it operates. The mileage operated totals 983. Of this the owned mileage totals only 235 or less than one-quarter. This is all in Pennsylvania and includes most of the Lackawanna mileage in that state. All of the extensive mileage in New Jersey and New York is leased. The leased mileage totals 733 and there are about 14 miles operated under trackage rights. The leased lines make up a long list of individual companies, some large and some, in the New York suburban district, quite small. These several companies have outstanding some $119,000,000 of stocks or bonds of which the Lackawanna owns about $31,000,000. The parent company guarantees interest and dividends on a large proportion of the subsidiary company securities. The result is that while it is true that the Lackawanna has no funded debt, the subsidiary companies have a very fair amount of it and instead of paying interest on its own

TABLE I—INCOME ACCOUNT

	1925	1924	Increase or decrease
Revenues:			
From transportation of anth. coal.	$17,757,554	$23,576,425	—$5,818,872
From transportation of merchandise	42,091,064	39,874,878	2,216,186
From transportation of passengers	13,628,673	13,600,454	28,219
Total, inc. other	$83,635,056	$86,727,184	—$3,092,127
Expenses:			
Maintenance of way and structures	$8,331,770	$7,745,720	$586,050
Maintenance of equipment	17,262,144	18,699,630	—1,437,487
Transportation expenses	32,707,387	34,091,817	—1,384,430
Total, inc. other	$62,390,610	$64,485,909	—$2,095,299
Net revenue from operation.	$21,244,447	$22,241,275	—$996,828
Taxes	6,832,653	6,900,102	—67,449
Railway operating income.	$14,402,022	$15,328,663	—$926,641
Equipment rents—net cr.	388,174	451,707	—63,533
Joint facility rents—net cr.	143,803	145,592	—1,789
Net railway operating income	$14,933,998	$15,925,962	—$991,963
Non-operating income:			
Dividend income	1,508,662	505,566	1,003,096
Income from funded securities.	4,017,898	4,050,105	—32,207
Total, inc. other	$6,076,553	$5,140,339	$936,214
Gross income	$21,010,552	$21,066,301	—$55,749
Deductions from gross income:			
Rent for leased roads	$6,533,523	$6,315,905	$217,618
Interest on funded debt	5,856	5,856	.....
Interest on unfunded debt	40,978	38,377	2,601
Total deductions from gross income	$6,580,357	$6,397,433	$182,924
Net income	$14,430,195	$14,668,868	—$238,673
Disposition of net income:			
Dividends declared	$11,821,754	$11,821,754	.....
Investment in physical property.	914,876	569,808	345,068
Total appropriations	$12,736,630	$12,391,563	$345,068
Surplus for year carried to profit and loss	$1,693,564	$2,277,306	—$583,742

bonds the Lackawanna pays indirectly much interest each year in the form of the rentals for the leased roads.

The Lackawanna owned and operated its own coal mines until 1921 when they were disposed of as a result of an adverse United States Supreme Court decision, finding violation of the Hepburn Act. The procedure was to establish the Glen Alden Coal Company. This company's stock consisted of 846,000 shares of no par value and Lackawanna stockholders were given the right to subscribe for it share for share at $5 a share. Glen Alden stock pays dividends at an annual rate of 7 per cent and is now selling on the New York Curb Market at $160 a share. The coal mines were turned over to the new coal company in consideration of $40,000,000 four per cent bonds secured by a mortgage on the coal lands. A sinking fund was established providing for annual payments of $1,500,000, beginning in 1926. The Lackawanna used to report on its coal operations a substantial annual profit after all expenditures for improvements. The amount averaged about 3½ million annually but in 1919 it was 5 million and in 1920, the last year before the segregation, it was 6½ million. The Lackawanna had established the Delaware, Lackawanna Coal Sales Company in 1909 as a coal selling agency to conform with the so-called commodities clause. This company was absorbed by the Glen Alden Company in 1925.

In 1921 the Lackawanna issued a 100 per cent stock dividend to capitalize surplus earnings invested in the property in past years. Prior to this change in the capital structure, the company's regular dividends were at the rate of 10 per cent with an extra 10 per cent, or a total of 20 per cent annually. The present 14 per cent dividends would total 28 per cent on the former capitalization.

Nearly $200,000,000 Improvements Paid from Income

The Lackawanna is, of course, known as a very wealthy railroad. It has, for instance, been able to spend enormous sums for realinement, including notably $12,000,000 on the 40-mile cut-off between Clark's Summit, Pa., and Hallstead and $11,000,000 on the cut-off between Port Morris, N. J., and the Delaware river. In the past 25 years it has spent nearly $200,000,000 for additions, all of which, except for the Hallstead cut-off (financed through sale of stock at par), was paid from income. Practically all grade crossings in the New Jersey suburban zone have been eliminated. The road is noted for its excellent track structure, its unusually excellent stations and the well kept appearance generally of its roadway, buildings, motive power and equipment. The standard of track construction is 105 lb. rail, creosoted ties, screw spikes, with all ties plated and rock ballast. Lately, the road has laid considerable 120 lb. rail. The road always has some important improvement under way. After completion of its two cut-offs it turned its attention to the rebuilding of its suburban lines. The work at present under way is the completion of the four-tracking of its main freight line and suburban passenger line through Boonton, N. J.

One of the road's handicaps is its heavy grades. Even its suburban passenger territory—the Lackawanna has a heavy commuter traffic—has grades of 1½ per cent. East and west out of Scranton it also has 1½ per cent grades as also grades equally severe against westbound traffic in the Poconos east of Scranton. Up to within a few years ago the road had no great amount of large motive power. In recent years there has been a marked change in this respect. Whereas formerly four, five or six locomotives were required to handle heavy coal trains up the grades out of Scranton, today, only two of the larger locomotives, including usually one a Mikado with a booster, are necessary. The road has five three-cylinder Mountain type locomotives. Many of its suburban trains are handled with Pacific type locomotives and the standard suburban locomotives are modernized superheated Ten-wheelers with tractive effort making them comparable with the Pacifics used on many railroads.

TABLE II—DELAWARE, LACKAWANNA & WESTERN OPERATING RESULTS, SELECTED ITEMS, 1916 TO 1925

Year	Revenue ton miles	Revenue passenger miles	Revenue per ton mile, cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges	Additions and betterments. Charged to Income*
1916....	5,263,263,000	$48,805,000	.72	51,580,899	31,940,974	19,639,925	62.0	.....	16,200,148	1,701,967
1917....	5,591,043,000	585,179,000	.75	57,211,224	37,676,488	19,534,736	65.86	16,971,381	15,370,197	1,785,612
1918....	5,574,774,000	604,648,000	.90	68,740,076	49,925,685	18,814,392	72.63	16,011,656	12,834,052	1,458,323
1919....	4,830,066,000	643,254,000	1.07	71,824,047	56,065,251	15,758,796	78.06	11,947,364	16,072,200	869,556
1920....	5,166,315,000	698,359,000	1.17	83,340,062	73,898,430	9,441,632	88.60	6,104,886	13,675,109	2,509,679
1921....	4,454,206,000	656,098,000	1.43	85,977,815	67,872,058	18,105,757	78.94	12,997,084	19,158,403	1,105,555
1922....	3,851,276,000	652,062,000	1.34	74,622,344	63,671,647	10,950,697	85.33	6,669,022	10,475,929	732,537
1923....	4,852,526,000	667,290,000	1.32	88,236,974	69,467,853	18,769,120	78.73	13,442,543	12,378,001	503,136
1924....	4,809,172,000	660,826,000	1.32	86,727,184	64,485,909	22,241,275	74.35	15,925,962	14,668,868	569,808
1925....	4,587,677,000	670,930,000	1.30	83,659,738	62,390,610	21,244,447	74.7	14,892,121	14,430,195	914,876

*In its 1925 annual report, the Lackawanna has changed its income account so that the "Additions and Betterments Charged to Income," are no longer stated, as formerly, as a deduction from gross income. The figures for 1925 and 1924 show this item as an appropriation from net income. These charges include only a small proportion of all the charges for additions and betterments, which in 1925 totaled $11,973,150.

Anthracite Traffic 40 Per Cent

In 1900, of the Lackawanna's traffic, about 60 per cent was anthracite. In 1924, anthracite constituted only 40 per cent. Manufacturers and miscellaneous constituted 25 per cent and products of agriculture made up about 10 per cent. The last named include the variety of such products grown principally in New York state but the road also secures a fair proportion of the grain moving from Buffalo to New York. In this connection it is of interest that in spite of a large grain traffic, the Lackawanna has no grain elevator in New York harbor. It uses, instead, barges and canal boats and calls upon the

TABLE III—COMPARISON OF SELECTED FREIGHT OPERATING STATISTICS

	11 Months 1925	11 Months 1920	Per cent of change Inc.	Dec.
Mileage operated	993	956	...	...
Gross ton-miles (thousands)	$10,528,763	$9,786,195	7.5	...
Net ton-miles (thousands)	4,639,983	4,095,493	...	5.4
Freight train-miles (thousands)	6,141	5,779	6.2	...
Freight locomotive-miles (thousands)	8,136	8,555	...	4.8
Freight car-miles (thousands)	273,921	242,983	12.7	...
Freight train-hours	514,261	549,795	...	6.4
Tons of coal consumed by freight locos.	1,006,852	1,049,107	...	4.6
Car miles per day	32.5	29.1	11.5	...
Net tons per loaded car	24.3	28.8	...	15.6
Per cent loaded to total car-miles	69.8	70.2	...	0.5
Net ton-miles per car-day	551	588	...	6.3
Freight cars per train	45.6	43.2	5.6	...
Gross tons per train	1,715	1,693	1.3	...
Net tons per train	756	849	...	10.9
Train speed, miles per train-hour	11.9	11.5	3.5	...
Gross ton-miles per train-hour	20,474	17,800	15.0	...
Net ton-miles per train-hour	9,023	8,922	1.3	...
Lb. coal per 1,000 gross ton-miles	162	.....	...	...
Loco. miles per loco. day	68.7	69.1	...	0.5
Per cent freight locos. unserviceable	16.9	19.8	...	2.9
Per cent freight cars unserviceable	3.5	5.2	...	1.7

services of the portable grain elevators with which New York harbor is plentifully supplied.

The Lackawanna in 1925 moved 4½ per cent less traffic than in 1924, but its anthracite traffic decreased 22½ per cent. This means that it moved less traffic than in 1923, and less also than in 1916, 1917, 1918 or in 1920. Its tonnage of manufactures and miscellaneous traffic in 1925 exceeded that in 1924 by about 9 per cent. The 1925 gross revenues were 3.5 per cent less than in 1924. There was a decrease of about 3.2 per cent in total operating expenses. Maintenance of way expenses increased 7.6 per cent; maintenance of equipment expenses decreased 7.7 per cent and transportation expenses 4.1 per cent. The 1925 transportation rates or ratio of transportation expenses to total operating revenues, was 39.1 per cent which seems rather high and the operating ratio was 74.6 per cent, which seems very fair.

Analysis of the Lackawanna's earnings from railroad operations or its operating statistics as reported in recent years does not produce anything particularly spectacular. Thus the net railway operating income or net after equipment and joint facility rents in 1925 was $14,933,998. This compared with $15,925,962 in 1924 which was the best year since 1918. But the Lackawanna's standard return for operations during federal control or average annual net railway operating income for the three years ended June 30, 1917, was $15,749,497. This means that in 1925 the Lackawanna did not equal its pre-war net earnings from railroad operations and that, inasmuch as the property investment is now much larger, the rate of return on the investment was less; at least the Lackawanna does not seem to be in any danger of having any of its net earnings recaptured under the terms of Section 15-a.

Operating Statistics Inconclusive

This same lack of spectacular change is reflected in the operating statistics. In Table III, a comparison is made of the figures for the first 11 months of 1925—the latest at present available—with those of the first 11 months of 1920. The table shows a decrease of 5.4 per cent in net ton-miles but increases of 12.7 per cent in freight car-miles and of 6.2 per cent in freight train-miles. There were, however, decreases in locomotive miles and freight train hours. It is disconcerting to notice the decrease of 10.9 per cent in net ton-miles and the increase of only 1.3 per cent in net ton-miles per train-hour. The evidence, in short, is inconclusive and no doubt reflects in no uncertain manner, the four months' loss of the coal traffic.

Railway Labor Bill Up in House

WASHINGTON, D. C.

CONSIDERATION of the railway labor bill was begun in the House on February 24 with the expectation that it might be passed on the following day. It had been expected to take up the bill on Tuesday but it was delayed until the following day by conference reports and it was made an order for Thursday and thereafter until finished.

The labor bill was reported to the House from the committee on interstate commerce on February 19, with the amendments adopted by the committee on February 17, after the bill had been reintroduced in the new form as H. R. 9463. A unanimous consent agreement was reached to devote two days to the consideration of the bill, half the time to be controlled by Chairman Parker of the committee and the other half by Representative Barkley, ranking Democratic member of the committee, although Mr. Barkley was also in favor of the bill. No record vote was taken by the committee as no one offered to vote against a favorable report. On February 20 the Senate committee voted to report out the bill in the form in which it had been amended by the House committee.

The report of the House committee was written by Representative Cooper of Ohio, himself a former locomotive engineman, who said in part:

During the hearings conducted by the committee it was conceded by all concerned that the enactment of this agreement into law would impose upon the parties to the agreement the moral obligation to settle their differences in the manner provided by law, so as to insure to the public continuity and efficiency of interstate transportation service, and to protect the public from the injuries and losses consequent upon any impairment or interruption of interstate commerce through failures of managers and employees to settle peaceably their controversies. There are also legal obligations which would be accepted by and imposed upon the parties by the proposed law that afford further guaranties of improved and continuous transportation service and protection of the public interest therein.

The principal point impressed upon the committee during the hearings was the desirability of giving the managers and employees of this most important national industry the aid and cooperation of the legislative, executive, and judicial power of the government in the settlement of industrial controversies by the means which practical men, who have devoted their lives to this industry, believe are best adapted to maintain satisfactory relations between employers and employees.

The committee has held extended hearings giving ample opportunity to the proponents and opponents of the bill to present their views. Representatives of various associations of manufacturers presented suggestions for a few amendments which were given careful consideration.

A board of mediation is created composed of five members appointed by the President by and with the advice and consent of the Senate, with the duty to intervene at the request of either party or on its own motion in any unsettled dispute, whether it be a dispute not decided in conference or by the appropriate adjustment board or a dispute over changes in rates of pay, rules or working conditions or any other dispute not settled in conference.

If the board of mediation is unable to bring about a settlement, it is required to seek to induce the parties to submit the controversy to arbitration.

Boards of arbitration are provided for when the parties consent to arbitrate. The provisions of an arbitration agreement, the methods of selecting arbitrators, and the arbitration procedure are written in detail in the text of the bill. The bill provides that an arbitration award shall be made the judgment of the court, which judgment shall be final and conclusive on the parties.

In the event that a dispute is not settled under the foregoing provisions of the bill, it is provided that the board of mediation, if in its judgment the dispute threatens substantially to interrupt interstate commerce, shall notify the President, who is thereupon authorized, in his discretion, to create a board to investigate and report to the President within 30 days from the date of its creation. It is also provided that after the creation of such a board and for 30 days after it has made its report to the President, no change except by agreement shall be made by the parties to the controversy in the conditions out of which the dispute arose.

The proponents of this bill have assured the committee of their conviction that the methods for voluntary settlement of disputes with the aid of government mediators are so well adapted to insure the adjustment of differences, either through conference, mediation, or arbitration, that it should be seldom, if ever, necessary for the President to exercise the power conferred upon him to appoint an emergency board. The records of the success of mediation and arbitration under the Erdman and Newlands acts considerably justify this conviction, which is also supported by the obvious good faith, the spirit of fair play, and of genuine regard for the public interest which characterized the negotiations of the parties and their presentations before the committee.

If, however, the full expectations of the proponents of the bill are not realized, and controversy threatens the interruption of interstate commerce, there is assurance of the protection of the public interest in this bill greater than has ever been offered in previous legislation. The President is empowered to create a board of outstanding representatives of the public who can investigate, with the aid of the permanent board of mediation, the Interstate Commerce Commission, the Department of Labor, and all other agencies of government, and bring to bear upon the parties the pressure of the highest governmental authority either to adjust their differences by voluntary agreement or to consent

to submit them to arbitration. If this pressure shall fail to in itself bring about a settlement, this Emergency Board will then be able in its report to give to the public adequate and intelligible information regarding the merits of the contentions of the parties and to crystallize public opinion in support of that party or that program which should be supported in the public interest.

This temporary emergency board will be able to express and to mobilize public opinion to an extent impossible to any permanent board or any agency of government which has been heretofore created for that purpose. It is also highly important to point out that during the period of investigation and for 30 days thereafter the parties to the controversy are bound under the proposed law to maintain unchanged the conditions out of which the dispute arose, thereby assuring the parties and the public that the emergency board will have the full and unembarrassed opportunity to exert its authority and fulfill its important function.

This bill is recommended for passage as both the most practical and advanced legislation for the settlement of industrial controversies that has been presented for the consideration of Congress.

The American Farm Bureau Federation and the National Grange have issued a joint statement opposing passage of the bill unless it is amended to give the public greater protection against the possibility of increased transportation charges.

European Motive Power Trends*

Change in American practice will be slow—High pressure locomotives with auxiliary low pressure turbine tenders anticipated

By W. H. Finley
Consulting Engineer, Chicago

THERE is great activity in Europe and America in developing a more economical form of motive power than that now furnished by the steam locomotive. Technical papers and trade papers, even newspapers, contain, from time to time, articles describing new types of motive power and predicting a revolution in railroad transportation, but I feel that there will be no sudden revolution in railroad transportation. It will, I think, fortunately follow the careful step-by-step progress that has taken place in the past.

As much doubt exists in Europe regarding the type of major motive power that will eventually be developed as there is in the United States. Leaving out of consideration, for the present, small power units such as self-propelled motor cars, European opinion seems to be divided between the turbo- and the Diesel locomotive. With all the publicity that has been given these two types, I found no turbo-locomotive in commercial use in Europe and but one Diesel locomotive, the latter being in operation in Soviet Russia. This locomotive was built in Germany and has been in operation in Russia for some time. Its performance and record is being carefully watched by railroad men and manufacturers.

Diesel-Electric Unpopular—Only One Turbo-Locomotive in Use

I was surprised to find that the consensus of opinion was against the practicability of the Diesel locomotive, electrically driven. Of the steam turbine developments under the Zoelly or Ljungstrom systems, outside of one or two experimental locomotives, the only one in actual use was the Ljungstrom steam turbine locomotive in Sweden. This locomotive is held at Stockholm on the Swedish State Railways for experimental and demonstration purposes, although it is occasionally used for special runs when there is a shortage of other power. The Ljungstrom company has had built and delivered to the Argentine a steam turbine locomotive which was received in the latter country in November and was expected to be in active service by this time. This locomotive, as expected, shows some improvements over the first experimental effort.

Beyer, Peacock & Company, Ltd., Manchester, England, is building a turbo-locomotive under the Ljungstrom patents, expected to be completed by this date and given its initial test on the London, Scottish & Midland Railway on the run from London to Glasgow. I was advised by an officer of the builders that this company has under consideration the development of a Diesel locomotive and will be prepared to furnish either type.

At the plant of the Swiss Locomotive & Machine Works, Winterthur, Switzerland, a demonstration was made of a 100-hp. 4-cycle, Diesel locomotive, used for switching in the yards. The engine operated at 550 r.p.m. and weighed 40 lb. per hp. The transmission was an oil operating clutch gear and the control was perfect, the locomotive being capable of reversing from five miles an hour ahead to an equal speed in reverse without stopping.

At the works of Henschel & Sohn, Cassel, Germany, I saw the testing in the yards of a 400-hp. Diesel locomotive, using solid injection and equipped with a Lentz gear transmission. While admitting that the present type of design is limited to slow speed of both driving and driven shafts and a limited range of speed of the driven shaft as well, belief was expressed that it could be so modified as to admit both high speeds and a wider range. The mechanical efficiency was given as 80 per cent. If this 400-hp. Diesel locomotive with the Lentz transmission works out satisfactorily, Henschel & Sohn expects to build a 1,000-hp. machine of the same type. Final decision will depend on the further reports of the operation of the Russian 1,000-hp. Diesel electric locomotive. Electric transmission was not regarded favorably by this company on the ground that it was too expensive (first and last), heavy, bulky, and too complicated. Their opinion is that the Diesel locomotive (provided that the transmission can be solved) will be in limited demand for (a) intermittent yard switching and where there is a penalty against smoke and dirt, and (b) on branch and main

*Abstract of an address delivered before the Western Railway Club, Chicago, February 15, following a two months' trip through France, England, Switzerland, Germany and Sweden in which Mr. Finley, who was formerly president of the Chicago & North Western, called upon many European railroad men and prominent manufacturers in the equipment field.

line work of railroads in localities where water is scarce—where cheap oil fuel is available—and where coal prices are high.

Turbo-Condensing Tender Being Developed

Henschel & Sohn is now developing and building a turbo-condensing locomotive tender for coupling to a 1,200-hp. piston locomotive. The tender will contain a low pressure turbine with drive and condenser, thereby adding approximately 600-hp. to the drawbar pull of the locomotive without the expenditure of additional fuel. The oil in the exhaust steam from the reciprocating engine will be extracted to the extent of about 95 per cent. A favorable result is anticipated as a water cooled surface condenser is less affected by oil than an air cooled type. This company has also completed plans for a 2,000-hp. Zoelly type turbo-locomotive, featuring boiler, turbine with drive, and condenser on one frame. If this turbo-condensing tender proves successful the builder will proceed with a 2,000-hp. rigid wheel base locomotive and low pressure tender.

At the Krupp plant at Essen, Germany, I looked over the Krupp-Zoelly turbine locomotive that had been completed and had made some test runs on the German State Railways. This locomotive is a decided improvement over the experimental Zoelly turbine locomotive at the plant of Escher Wyss & Co., Zurich, Switzerland. It must be remembered, however, that the experimental locomotive at the Swiss plant was a converted steam locomotive and, in building the Krupp-Zoelly machine, a better arranged and more symmetrical looking unit was produced. Krupp is given special attention to the development of a Diesel locomotive and is building a 1,000-hp. locomotive type, featuring a gear drive with magnetic clutch. This is Krupp's attempt to develop something to take the place of the electric transmission. This company also has plans under way for a 2,000-hp. Diesel locomotive but is not pushing it, awaiting more information as to the performance of the 1,000-hp. Diesel locomotive in operation in Russia.

Mr. Hagenbucher, the chief engineer, seemed a strong believer in the turbo-condensing locomotive. He did not think there was any revolutionary change pending but rather, with the increasing demand for more efficient motive power, there would come a gradual introduction of the turbo-condensing type. He thought there would be considerable development of Diesel locomotive for special purposes such as places where water is scarce and coal is expensive but oil cheap and available. It is considered to have a field also in industrial switching and short haul work where special conditions are in its favor.

In all the places visited, I found a decided doubt in the minds of many as to the commercial success of the Diesel-electric engine now in use in Russia. Some were very emphatic in their opinion that it was not a success, claiming that troubles had developed and the electric transmission was one of the items causing the most concern.

There is no doubt that the introduction of a low compression, solid injection engine has given the semi-Diesel quite a boost and as a result the steam advocates have awakened and are making great developments in the prime mover using steam. At the works of Henschel & Sohn, Cassel, previously referred to, I saw a converted steam locomotive from the German State Railways that generated steam at 90 atmospheres and used a working pressure of 60 atmospheres, or 900 lb. When I saw this locomotive it had just come in from a run on the German State Railways.

The demand for a small self-propelled car is just as insistent in England and on the Continent as in America. In conversation with the chairman of the board of Beyer, Peacock & Company, Ltd., he stated that what England needed was some form of small efficient self-propelled railroad car to enable the railroads to compete with the steam and petrol buses and lorries used on the highways. In Germany I found the same condition and the railroads are developing both Diesel and steam power for motor car work. Cars of both types in actual use are about equally divided, with the Diesels averaging slightly higher in power. Larger power units of both types of cars are contemplated. The steam cars are coal fired and are reported as having the advantage over the Diesels in both first cost and operating cost. Some plans of these cars suggest the revival of the Ganz idea. I also understand that plans are being developed for a small (500-hp.) automatically coal fired locomotive which will be operated by one man.

The Swedish State Railways are going in rapidly for electrification and this fact is engaging the attention of their organization to the exclusion of many other things. The State Railways own and operate no internal combustion motor cars. At one time they had a 100-hp. Diesel car but it was too small for their purposes and therefore was disposed of. There are, however, some fifty Diesel-electric cars owned and operated by small private roads in Sweden which are reported as giving good service. The State Railways are now trying out a 300-hp. Diesel electric locomotive, reported as performing satisfactorily. The inspection of this car showed that it is about 40 ft. in length and aside from an 8-ft. baggage space is all power plant. The engine was being overhauled at the time of inspection.

The history of self-propelled cars is rather a long one. The earliest steam powered railroad motor car on record was built in England in 1847. There was apparently little activity in this line until 1897. From that time until 1910 several hundred steam powered railroad motor cars were built in this country and abroad. The early steam self-propelled cars were mostly of low pressure ranging from 160 lb. working pressure to 200 lb.—the boiler generally of the vertical fire tube type.

In 1903 Ganz & Company, Budapest, Austria, built a car with a vertical water tube boiler carrying 250 lb. pressure. In 1907 this company built a car for the Florida East Coast and this was the first Ganz type of car used in the United States. This company met with considerable success and about 200 cars have been put out.

In recent years there has been increased activity in the production of self-propelled cars and they seem to be confined now to gasoline directly connected, and gasoline electrically driven. Some of the latter are reported as giving excellent service. There has also in later years been a decided tendency to increase the capacity of these self-propelled cars so that they can haul a trailer or two. Some are now built of about 300 to 400 hp. capacity. I think increasing difficulty will be found with the internal combustion type in the larger units unless a satisfactory transmission is developed.

Railroads Need Secondary Motive Power

I feel that what the railroads need is a secondary power, something between their small standard locomotives and the light weight self-propelled cars. Whether such a car will take the form of the internal combustion engine or steam is still a matter to be determined. I feel that in cars of 500 hp. it will be possible to develop a steam car that will compare favorably in efficiency with the internal combustion type and would not require the building up of a special personnel for their maintenance. Steam has proved a very reliable source of power for railroad transportation owing to its flexibility.

Since Watt, over 100 years ago, called R. A. Trevithick a potential murderer for proposing to operate boilers at

the dangerous pressure of 60 lb. per sq. in., every subsequent increase in steam pressure was opposed by the conservative majority, and it was not until our electrical friends demanded something more efficient in the way of high speed for their purposes than the existing steam engine as a prime mover, that the steam turbine was developed to meet this demand. The steam engineer, owing to established precedents, opposed higher speeds and high pressures. Electrical engineers, on the other hand, not being tied up to so long a line of precedents were more progressive and the steam people were forced to meet their demands. I think I still notice in this country among steam users, objection to high rotative speeds in turbines. European engineers seem to have pushed ahead of us in this respect.

The same feeling existed as far as the boiler was concerned and high pressures were looked at with alarm, but the increase in boiler pressure has gone on until now 500 lb. and more is accepted. We have now reached the point of giving serious consideration to the Benson super-pressure boiler. In this boiler it is proposed to generate steam at a pressure of 3,200 lb. at a temperature of 706 deg. F. An experimental plant has been constructed at Rugby, England, which it is expected will be in operation about the first of the year. A 50 per cent interest in the boiler has been disposed of to the firm of Siemans & Schuckert, Germany, and the latter company has erected a 2,000-kw. plant at Berlin for experimental purposes.

To give you an idea of the difference in opinions of steam advocates and Diesel motor advocates, I will quote from a paper of J. S. Haldane, M.D., F.R.S., "The Maximum Efficiency of Heat-Engines, and the Future of Coal and Steam as Motive Agents," read before the Institution of Mining Engineers on June 16, 1925. Mr. Haldane says:

"At the present time steam-engines and oil engines are running a neck-to-neck race as regards many employments, while elsewhere the oil engine is being applied increasingly to quite new purposes, where no heat engines had previously been applied. In the opinion of many persons the steam engine is bound to be displaced more and more by the internal combustion engine. This opinion is largely based on the current academic doctrine that the efficiency of a heat engine depends on the absolute temperature reached in the engine. In this paper I have taken my courage in my hands and thrown to the winds the academic teaching, backed though it be by the names of men to whom the whole world has had good reason to be grateful. But I wish now to go a step farther. I think that the development of the steam engine has been very greatly hindered by the fallacious teaching associated with Carnot's cycle. Engineers have been prevented from seeing clearly what the maximum efficiency of a heat engine is, where that efficiency is being needlessly lost, and how the steam engine can be modified to suit varying circumstances without loss, or with minimum loss, in efficiency. . . . As regards modifications of the steam engine to suit varying circumstances, it seems to me that small engines, working at very high pressures, and with correspondingly small tubular boilers, will come more and more into use. From a quite recent paper by Professors Mellanby and Kerr I gather that we may expect steel under heavy pressure to stand temperatures up to about 900 deg. F. or 480 deg. C. But even at the lower temperature of 710 deg. F. or 374 deg. C. we have reached the critical temperature of water and a pressure of 210 atmospheres, or over 3,000 lb. per sq. in. At present I can see no fundamental objections to using steam up to or above these pressures; but in any case a steam pressure of 100 atmospheres, with a corresponding temperature of 600 deg. F. seems well within reach. The steam engine in the future will, I think, nearly always be a condensing engine, even if the steam is condensed at or above boiling point. The familiar puff of locomotive and other steam engines will then no longer be heard; and where weight of and space occupied by the engine are of great importance, multiple-expansion engines and low pressure turbines will also disappear. With all due respect to well known persons who have recently been writing on the subject of Diesel engines in The Times, I do not think that the Diesel engine will have even a dog's chance against the future steam engine for ship propulsion."

This is the opinion of apparently an extreme steam advocate. In the discussion of this paper, Professor Henry Louis of Newcastle-on-Tyne, expressed himself as follows:

"I admit that I am a believer in the internal combustion engine rather than the steam engine, but my opinion is not based as Dr. Haldane suggests, 'on current academic doctrine'; it is based on hard facts. I find in Kempe's Engineers' Year Book extracts from the Electricity Commissioners' Reports for 1924, which give the lowest coal consumption for a steam engine as 1.81 lb. per kw., as against the lowest oil consumption of 0.64 lb. One such fact speaks more than pages of Cranot-cycle theories."

Regardless of whether the prime mover is a gasoline engine, Diesel motor, or steam turbine, it is very important that the transmission between the prime mover and the secondary shaft be of such flexible character that it will not transmit shocks and jars from the track to the prime mover. This is so thoroughly recognized by railroad men and builders of locomotives and motor cars that probably more attention is being given it today than the type of prime mover. I found that they are not only building various kinds but any number of projects are in the air. Unfortunately so many of them fail to get down to earth.

(Mr. Finley here described in some detail several of the important transmissions offered to date including hydraulic (swash plate, Lentz, and Fottinger); semi-hydraulic (Schneider, hydro-planetary and Sim); and several miscellaneous transmissions including the Entz magnetic, Constantinesco torque converter and the De Lavaud which imparts its motion to the driven parts through ratchets or a variation.—Editor).

We have been told, from time to time, that the steam locomotive would be scrapped in favor of some new form of power, but it is still doing good and reliable work for the railroads, and will continue to do so for many years to come.

I believe, however, that improvements can and will be made that will greatly increase the value of the steam locomotive for transportation purposes. I believe that some of the power on the railroads can be greatly improved by the addition of a low pressure steam turbine tender, adding greatly to the tractive force without any additional fuel consumption and thereby making unnecessary the purchase of heavier power.

I believe the next improvement will be in the use of higher pressure steam and with a tender carrying a low pressure turbine, or possibly the combination in one unit of a high pressure piston locomotive and steam turbine. I believe these improvements will come in the immediate future.

Assuming that the Benson super-pressure boiler becomes a commercial success, I can vision the operation of railroad terminals, and even suburban trains by fireless locomotives with steam furnished from highly efficient super-pressure central stations, thus eliminating smoke, dirt and noise. This will save railroads the large expense that electrification would entail.

P. R. R. to Seek Wide Powers in Bus Charter

Hearing on application for first permit discloses possibility of extension to 55 counties of Pennsylvania and to other states

IN Pittsburgh, Pa., on February 10, the Public Service Commission of the state held a hearing on the Pennsylvania Railroad's first application for a certificate of convenience and necessity authorizing the operation of highway motor vehicles—buses and trucks—in lieu of passenger train service on the Waynesburg & Washington Railroad, a subsidiary of the Pennsylvania.

Opposition to the granting of the certificate was developed at the hearing in the person of Howard W. Hughes, an independent bus operator giving service in this territory. His objection was based on the grounds that his company was already giving adequate highway transportation service in this area.

The railroad's application for the certificate covering this route was made by F. J. Scarr, the railroad's supervisor of motor operations. Meantime steps are being taken to organize the Pennsylvania General Transit Company, a subsidiary of the railroad, which will present its application for a charter in the Commonwealth of Pennsylvania some time during March. As soon as the application for this charter is granted, Mr. Scarr will, with the consent of the Public Service Commission, transfer the certificate for the Waynesburg & Washington line to the new company.

Possibility of Extended Highway Operations Disclosed

That the application for this one certificate is probably only the starting point of a policy which may lead to extensive highway operations by the railroad is indicated by the advertisement now being inserted in Pennsylvania newspapers relative to the proposed Pennsylvania General Transit Company. This company, according to the advertisement which is appearing in two papers in each of fifty-five counties of the Commonwealth, asks for authority not only to operate the Waynesburg & Washington line, but also for power to operate in all the other of the fifty-five counties now served by the railroad, and also outside of the Commonwealth of Pennsylvania, subject in each case of course to the approval of the state or national regulatory body having jurisdiction. The charter, also, does not restrict itself to passenger transportation, but includes also freight service. A copy of this advertisement follows:

Notice is hereby given that an application will be made to the Governor of the Commonwealth of Pennsylvania on March 30, 1926, under the Act of Assembly of the Commonwealth of Pennsylvania, entitled "An Act to Provide for the Incorporation and Regulation of Certain Corporations," approved April 29, 1874, and the supplements thereto, for the Charter of an intended corporation to be called Pennsylvania General Transit Company. Said corporation is to be formed for the purpose of owning, hiring and operating motor and similar conveyances for the transportation of persons, freight, merchandise, and other personal property therein for hire, in the counties of Adams, Allegheny, Armstrong, Beaver, Bedford, Berks, Blair, Bradford, Bucks, Butler, Cambria, Cameron, Center, Chester, Clarion, Clearfield, Clinton, Columbia, Crawford, Cumberland, Dauphin, Delaware, Elk, Erie, Fayette, Forest, Franklin, Greene, Huntingdon, Indiana, Jefferson, Juniata, Lancaster, Lawrence, Lebanon, Luzerne, Lycoming, McKean, Mercer, Mifflin, Montgomery, Montour, Northumberland, Perry, Philadelphia, Potter, Schuylkill, Snyder, Somerset, Tioga, Union, Warren, Washington, Westmoreland and York, between such points in the said counties, or any one of them, via such route or routes as shall hereafter be approved by the Public Service Commission of the Commonwealth of Pennsylvania, and elsewhere outside of the said Commonwealth of Pennsylvania upon the approval where required of any other state or national governmental body having jurisdiction.

Testimony at the Hearing

At the hearing in Pittsburgh on February 10, J. L. Aber, assistant solicitor, presented the case for the company. W. R. Lehew, supervisor of stations and transfers of the Panhandle division of the Pennsylvania, gave figures testifying to the decline in business suffered by this line due to highway competition. H. W. Hughes, the independent bus operator who opposed the granting of this certificate to the railroad, objected to Mr. Lehew's testimony regarding the traffic and earnings situation on the railroad. This, he urged, was not germane to the application, which he thought should be judged on its own merits entirely; the railroad's financial condition and traffic position having nothing to do with the case. This objection was overruled, with the presiding commissioner holding that information of the character offered by Mr. Lehew was relevant to the case, as providing a reason for the company's desire to go into the highway transport business.

Mr. Hughes then asked Mr. Lehew if he had not testified before the commission opposing the granting of a certificate to Mr. Hughes' bus line, saying that the railroad service was adequate to meet the transportation needs of the territory. Mr. Lehew answered in the affirmative, but pointed out that when he had appeared to oppose Mr. Hughes' permit he had predicted that if it were granted its effect on railroad traffic and revenue would be just as it has now actually turned out.

Mr. Scarr's Testimony

Mr. Scarr in testifying as to the railroad's reasons for applying for this permit cited the following:

The falling off in passenger business of the Waynesburgh & Washington Railroad as previously testified to by Mr. Lehew;

The lack of charter rights on the part of the Waynesburg & Washington Railroad to operate its own motor vehicles on the highways;

The necessity for protecting the interests of the Pennsylvania Railroad against possible loss of passenger traffic, particularly for points beyond Washington, Pa.;

The convenience and necessity of an improved, more adequate and more complete highway transportation system to serve the communities of Waynesburg and Washington, Pa.;

The belief that the Waynesburg & Washington Railroad, by virtue of its 48 years of faithful service to this territory, has a moral or priority right to continue in the transportation business on a profitable basis;

And the desire upon the part of the Waynesburg & Washington Railroad to render a service as complete and convenient if not more so than that existing prior to the forced passenger train reduction of the latter part of last year are my reasons for

seeking authority from the commission to undertake a motor bus and truck operation between Waynesburg and Washington and intermediate communities.

The purpose I propose serving, if and when authority is granted by the commission, is to render a passenger service between Waynesburg and Washington, co-ordinated with the Pennsylvania Railroad rail service between Washington and Pittsburgh and points beyond, complete in every sense that the service rendered by the Waynesburg & Washington Railroad has been complete, and to greatly improve upon such former service, both in the matter of in-transit time and frequency of service.

He said that the Pennsylvania Railroad had been studying the question of engaging in highway transportation for over a year and had considered this specific case for more than nine months. He announced the intention, if the certificate were granted, to give the same service as far as seating capacity is concerned on the buses as now obtains on the trains. This would be obtained by greatly increasing the frequency of the service and thus making it more available to the company's patrons.

Mr. Scarr explained that the application was made by himself personally rather than by the Pennsylvania General Transit Company, in order that the service could be begun at an early date, pending the completion of the legal routine necessary in incorporating the new company.

It was brought out that the highway service will be operated over a 22-mile route as opposed to 28 miles on the railroad. Mr. Scarr explained that a large percentage of the traffic was between the termini of this line rather than intermediate, and that the convenience of the great majority required operation over the shortest route. To take care of local travel it is planned to make further application to the Public Service Commission for the privilege of operating over other highways than that mentioned in this direct route, should the necessity and convenience of the intermediate communities demand such service.

The request for authority to operate motor truck equipment is cared for in a separate application by Mr. Scarr.

The proposed schedule of the bus line was filed by Mr. Scarr and is shown in the accompanying table. It was explained that fares would be collected by the motor coach drivers. Railroad tickets will be honored on the bus lines, a contract to be entered into between the bus line and the railroad to decide the amount the railroad would have to pay the bus line for each ticket so honored. Mr. Scarr cited the following as points to show wherein the proposed line would provide complete and convenient service to the public:

1. Modern, comfortable and safe equipment.
2. More frequent service than existing schedules.
3. Shorter in-transit time between Waynesburg and Washington than the railroad can render.
4. Shorter in-transit time between Waynesburg and points beyond Washington than any existing service can render.
5. Baggage checking convenience, including through checking to distant rail points.
6. Honoring of railroad tickets, insuring a maximum convenience of travel to points beyond Washington.
7. Insurance of permanently continuing railroad service and responsibility to the communities south of Washington to and including Waynesburg.
8. Insurance of permitting the transportation interests, for 48 years the faithful servant of the territory between Waynesburg and Washington, to remain in the business of serving the best interests of the public by supplying a most complete and convenient transportation service.

A number of residents in the communities affected were present at the hearing and testified in support of the railroad's application. Another hearing in the case is scheduled for February 26, at Pittsburgh.

PROPOSED SCHEDULE OF MOTOR COACH SERVICE BETWEEN WAYNESBURG AND WASHINGTON

NORTHBOUND

DAILY EXCEPT SUNDAY

Leave Waynesburg		Arrive Washington	Connecting with train	
Bus No.	Time	Time	Number	Time
1	5:50 AM	6:50 AM	512	6:55 AM
2	6:40 AM	7:40 AM	522	7:47 AM
1	8:40 AM	9:40 AM	532	9:48 AM
2	11:10 AM	12:10 PM	542	12:15 PM
1	12:50 PM	1:50 PM	552	1:58 PM
2	3:15 PM	4:15 PM	562	4:20 PM
1	5:15 PM	6:15 PM	572	6:45 PM
2	7:40 PM	8:40 PM	582	9:28 PM

SUNDAY ONLY

1	8:00 AM	9:00 AM	...	.....
2	9:20 AM	10:20 AM	802	10:28 AM
1	12:50 PM	1:50 PM	552	1:58 PM
2	4:25 PM	5:25 PM	822	5:30 PM

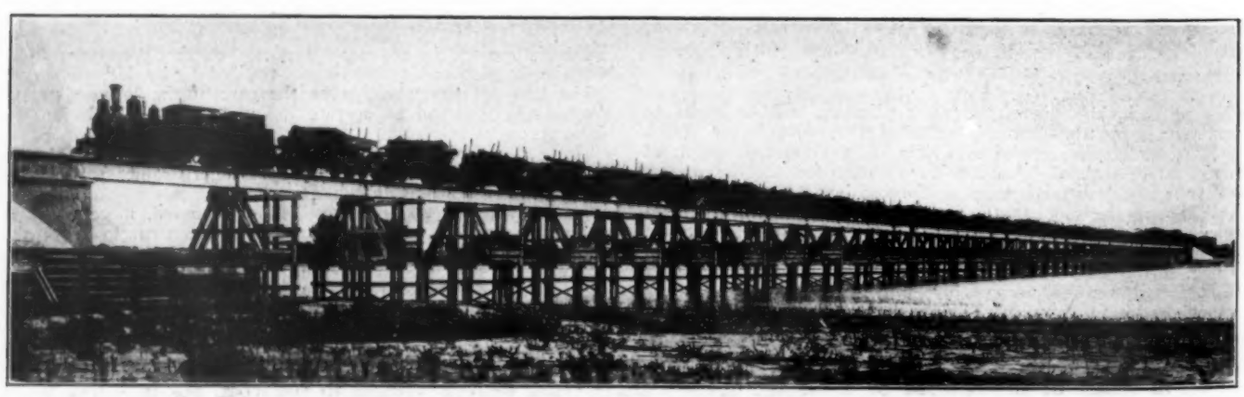
SOUTHBOUND

Connection from train		Leave Washington		Arrive Waynesburg
Number	Time	Bus No.	Time	Time
...	.....	1	7:30 AM	8:30 AM
503	8:24 AM	2	8:30 AM	9:30 AM
513	10:27 AM	1	10:30 AM	11:30 AM
523	11:53 AM	2	12:30 PM	1:30 PM
533	2:40 PM	1	2:45 PM	3:45 PM
543	5:20 PM	2	5:25 PM	6:25 PM
553	6:20 PM	1	6:25 PM	7:25 PM
573	8:43 PM	2	8:45 PM	9:45 PM

SUNDAY ONLY

803	9:54 AM	1	10:00 AM	11:00 AM
523	11:53 AM	2	12:00 N	1:00 PM
...	.....	1	2:00 PM	3:00 PM
823	6:49 PM	2	6:55 PM	7:55 PM

NOTE: Departure time shown is from Main Street Station, Washington, and W. & W. Station, Waynesburg. Passengers will also be received at the corner of Washington and Main Streets, Waynesburg, 3 minutes later and the George Washington Hotel, Washington, 5 minutes prior to the time shown.



Trainload of Quebracho Logs, Santa Fe Railway, Argentina

Unloading Freight on the Ithaca Branch

Lehigh Valley Substitutes Trucks for Trains and Switching

Use made of motor vehicles in l.c.l. interchange as substitute for local freight trains and in providing direct collection and delivery and lighterage to steamships

THE Lehigh Valley has effected marked economies in the handling of freight by the substitution of motor trucks for train, switching and lighterage movements. This development has been of gradual growth, the change being made only where careful study indicated that savings might be expected. Moreover, indications are that further development may be expected, if the careful check now being kept on existing motor truck operations warrants it.

Outside the New York metropolitan district the truck is being used in two services, viz., to interchange less-than-carload tonnages with other railroads and as a substitute for local freight train service. In New York trucks are used as follows:

1. For lighterage of freight in single car lots or split deliveries to or from steamships (saving the use of a car float and tug boat for such a small load).

2. Direct collection on delivery to and from shippers consignees who desire it in lower New York.

3. Connection between freight house and off-lines stations operated in behalf of the railroad by the cartage agent in lower New York.

4. Connection with coastwise steamship lines.

Table 1 and the accompanying map will indicate the location and extent of these operations. All the work is carried on in behalf of the railroad by a cartage agent working under contract.

Great Savings in Way Freight Truck Service

There is little question of the road's continuance of the use of the motor truck in some form or another; it has already conclusively proved its value in a number of cases. The total actual saving in the case of interchange between railroads and in the various uses to which it is put in the New York area are rather difficult to put in accurate figures. This is not the case where it has enabled local freight trains to be taken permanently out of service.

Tables 2, 3 and 4 show the savings in the month of January on three of the way-freight routes. The fourth, that in operation in the vicinity of Wilkes-Barre, has been in service for too short a time for any statistics on it to be available from which any definite conclusions may be drawn.

The company has discovered other advantages in the substitution of the truck for the local freight train beyond the savings in wages and engine and car expense. One of these is the increasing of the capacity and the speeding up of the movement of other trains on the line—since the local train with its frequent stops causes as much congestion on a single track line as two through trains would. Another improvement, not shown in the figures, is the better service which it is possible to give to shippers by eliminating delay at transfers. For instance, the Wilkes-Barre truck delivers freight to suburban points within a few hours after arrival in Wilkes-Barre, without the de-

lay necessary to assemble the freight in way cars at the transfer and then making them into trains.

Close Check on Operations

A close check is kept on the performance of trucks in way freight service. Fig. 1 is an example of a report which is made on each trip. From such reports that shown in Fig. 2 is made. These in turn are entered in an indexed chart in the office of the superintendent of transportation, which shows at any time the tonnage of freight loaded and unloaded at each station for each day in the month and the gross revenue. Monthly totals are drawn from this chart.

The tonnage handled per day on the four way trucks will run from 35 to 50. . . . All the service in New York is carried on by one contractor, the United States Trucking Corporation, which performs similar services for other railroads and does a general trucking business. Consequently, it is able to increase or diminish the number of trucks in service for any one railroad in proportion to the demands of the traffic. For Lehigh Valley service, the number of trucks required by this company will vary from 5 to 20 a day.

Care in Drawing Up Cartage Contract

The company has developed a uniform contract which its cartage agents have either signed or will be asked to sign. Responsibility is put squarely up to the truck owner in the performance of his contractual obligations. Insurance against loss or damage to cargo must be furnished. For a time some difficulty was experienced in this regard due to the fact that such thoroughgoing insurance for motor trucks was not being generally written. This difficulty has now been overcome, however. The contract, in its essential details, follows:

THIS AGREEMENT made in duplicate this (date) between LEHIGH VALLEY RAILROAD COMPANY, a corporation

TABLE 2

Savings effected on Seneca division by installation of motor truck service between Sayre, Waverly and Wysox

Month of January, 1926

Abolition of Sayre-Wysox turn-around run..... 26 days at $72.68 per day Wages of crew $36.28 Loco. exp. 40 mi. at 91 c. per mi. $36.40	$1,889.68
Saving of 37 cars at Sayre ttr. 2 days per car, 74 car days.....	74.00
Saving of 22 cars at DLW Waverly, 1 day per car, 22 car days..	22.00
Saving of 17 cars at Towanda Wash st., 3 days per car, 51 car days	51.00
Saving in per diem of 26 cars del. Erie R. R. 1 day per car, 26 car days	26.00
Saving of 9 cars handled at Wash st from S. L. & S. and S. & N. Y. 1 car per day, 9 car days.....	9.00
Total	$2,071.68
Less cost of motor truck.....	825.00
Actual savings	$1,246.68

Handled 9,076 pieces
586,444 lb.
$2,622.79 Revenue

TABLE 1

Kind of Service	Division, branch or station	Termini From	Termini To	Route Miles	Number of trucks or Automobiles	Remarks
Transfer between freight stations	Seneca & Auburn Divisions	Geneva, N. Y.	East Ithaca, N. Y.	64.4	1	Opposite directions on alternate days, except Sunday, displacing way freight service.
Transfer between freight stations	Seneca Division	E. Waverly, N. Y.	Wysox, Pa.	50*	1	Round trip daily, except Sunday, displacing way freight service.
Transfer between freight stations	Auburn & Seneca Divisions	Elmira, N. Y.	Ithaca, N. Y.	94.8*	1	Round trip daily, except Sunday, displacing way freight service.
Transfer between freight stations	Buffalo, N. Y.	D. & C. N. and C. B. & T. Co.	L. V. R. R.	1½	..	Operated according to traffic requirements, displacing switching service.
Transfer between freight stations	Rochester Branch	Rochester, N. Y.	W. S. R. R. at Mortimer, N. Y.	2	..	Transfer of freight requested by N. Y. C. and operated at their expense, displacing switching service.
Transfer between freight stations	Geneva, N. Y.	L. V. R. R.	N. Y. C.	250 ft.	..	Operated according to traffic requirements, displacing switching service.
Transfer between freight stations	Camden, N. Y.	L. V. R. R.	N. Y. C.	½	..	Operated according to traffic requirements, displacing switching service.
Transfer between freight stations	Ithaca, N. Y.	L. V. R. R.	D. L. & W.	½	..	Operated according to traffic requirements, displacing switching service.
Transfer between freight stations	Cortland, N. Y.	L. V. R. R.	D. L. & W.	1	..	Operated according to traffic requirements, displacing switching service, for lots under 8,000 lbs.
Transfer between freight stations	Owego, N. Y.	L. V. R. R.	D. L. & W.	½	..	Operated according to traffic requirements, displacing switching service.
Transfer between freight stations	Sayre, Pa.	L. V. R. R.	D. L. & W.-Waverly	1½	..	Operated according to traffic requirements, displacing switching service by contractor handling E. Waverly-Wysox truck.
Transfer between freight stations	Canastota, N. Y.	L. V. R. R.	N. Y. O. & W. at Oneida, N. Y.	6	..	Operated according to traffic requirements, displacing switching service.
Transfer between freight stations and store-door delivery	Jersey City, N. J.	Jersey City, N. J.	New York, N. Y.	Varies	Varies	Operated according to traffic requirements, in place of lighter and float service.
Transfer between stations	New York City	L. V. R. R.	Steamship Cos.	Varies	Varies	Operated according to traffic requirements, in place of lighter and float service.
Transfer between freight stations	Cortland, N. Y.	L. V. R. R.	Cortland Co. Traction Co.	1¼	..	Operated according to traffic requirements, displacing switching service.
Tranfer freight Between freight stations and M. of W. Service	Wilkes-Barre, Pa.	Glen Summit Springs	Pittston	50*	1	Local freight service to surburban points and M. of W. service.

Note: All freight handled by private trucking companies under contract, except at Wilkes-Barre. Where no number of trucks is shown, service is performed in connection with other work of the contractor, as conditions require.

* Mileage made by truck each day.

of Pennsylvania, for itself and on behalf of its lessor, The Lehigh Valley Railway Company (hereinafter called the Railroad Company) of the first part, and.....
trading under the firm name and style of.....
of the second part.....

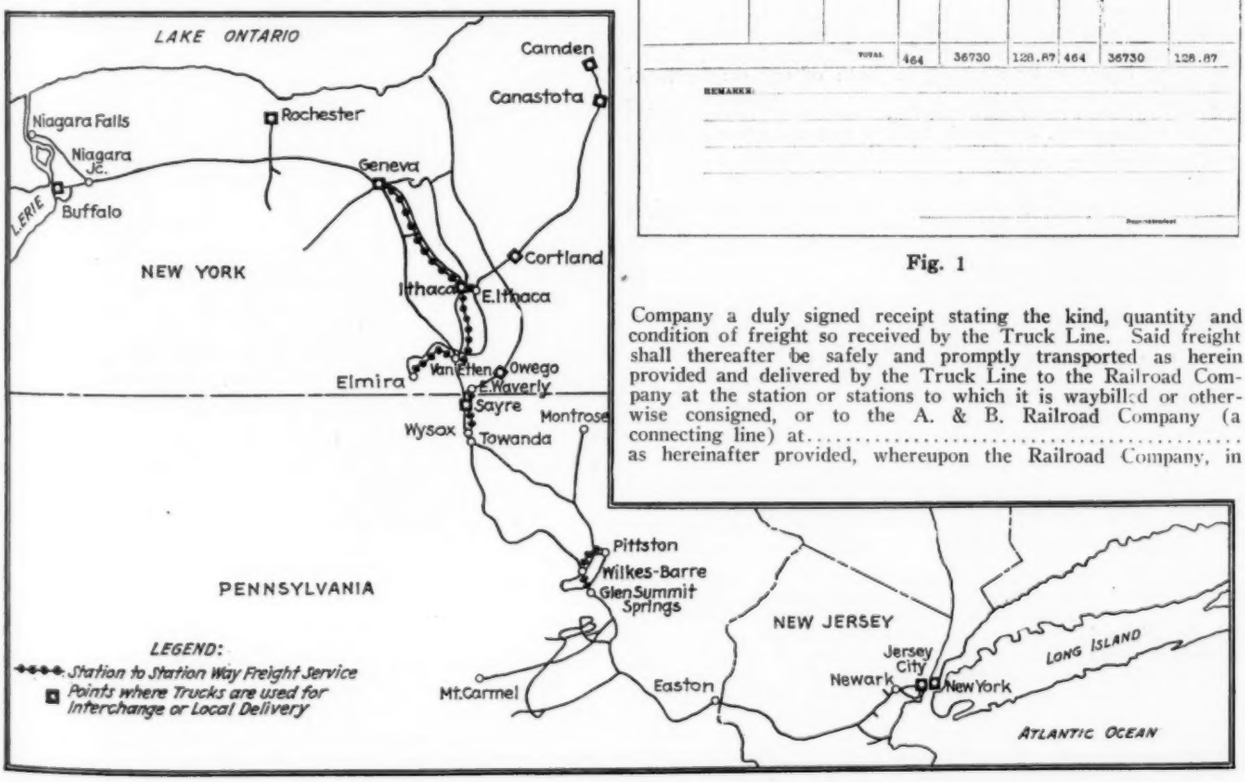
TABLE 3

Statement of savings on Seneca and Auburn divisions account operation of motor truck handling L. C. L. freight between Elmira and Ithaca
Month of January, 1926

	Monthly Saving
Seneca Division	
Elimination of 1 hour overtime on No. 133's crew 31 days at $6.93 per day	$214.83
Elimination one trainman on No. 133's crew, 31 days at $5.24 a day	162.44
Saving in handling 30 tons L.C.L. on truck formerly handled at Sayre	14.58
Total Seneca Division	$391.85
Auburn Division	
Elimination of one trainman on Shine Line crew 26 days at $6.16 per day	$160.16
Elimination of one trainman on Cortland-Van Etten local freight (26 days at $5.24)	136.24
Elimination one hour overtime to crew of Shine Line (26 days at $6.10 per day)	158.60
Elimination one hour overtime to crew of Cortland-Van Etten local (26 days at $6.67 per day)	173.42
	$628.42
Saving in Car Days	
Elmira-Ithaca Car, 9 cars at 2 days per car	$18.00
Newfield & way local—Ithaca 11 cars at 3 days per car	33.00
Van Etten & way local—Sayre 13 cars at 3 days per car	39.00
Elmira Hts. & way—Elmira 23 cars at 2 days per car	46.00
136 car days at $1 per day	$136.00
Grand Total	$1,156.27
Operation Motor Truck	
Pieces 4053, 298,701 lb., Rev. $1,251.71	
Cost motor truck	936.00
Net saving	$220.27

WITNESSETH:

WHEREAS, The Railroad Company desires to contract with the Truck Line for the transportation by the Truck Line as and



Location of Truck Operation of Lehigh Valley

hereby convenant and agree to and with each other as follows:

FIRST: The Truck Line agrees to provide, maintain and operate all necessary trucks and safely and promptly transport by truck, all less than carload shipments of freight received by the Railroad Company in the regular course of business at its stations at (names of stations to be served) from, to and between each of said stations to the same extent and upon and under the same liability and conditions as the Railroad Company as a common carrier thereof, is or may be required to perform such transportation. Said freight shall be delivered by the Railroad Company to and received by the Truck Line at said station or stations and the Truck Line shall give to the Railroad

Lehigh Valley Railroad Company

MOTOR TRUCK PERFORMANCE

TRUCK NO. 2 DIVISION Seneca DATE 1-15-26 192

Sayre to Wysox and return

STATIONS	ARRIVED	DEPARTED	LOADED Pcs.	LOADED Weight	LOADED Revenue	UNLOADED Pcs.	UNLOADED Weight	UNLOADED Revenue
Sayre	7:25 A	8:00 A	61	10654	38 93			
E.Waverly			2	150	50	2	100	50
LV "						13	1596	12.10
DLAW			97	5700	21 53	46	8058	26.33
Sayre	9:50 A	11:00 A	186	10183	29.12	2	150	.50
						40	2270	10.80
Milan	11:40	11:45				23	964	4.28
Ulster	12:05 P	12:15P				22	1388	6 73
						4	260	.52
Towanda	1:05	1 35	4	394	2,17	81	4179	9.69
						27	1855	7.15
Wysox	1:50					60	3652	8.42
						26	1315	3.06
Towanda	2:25	2:50	94	5306	16 00	(4	397 Wysox	2.17)
Ulster	3:25	3:50				1	100	50
Milan	3:50	4:05	20	4340	20 62	6	717	3.23
Sayre	4:30					88	4488	12.27
						20	4340	20.62
		TOTAL	464	36730	128.87	464	36730	128.87

REMARKS:

Fig. 1

Company a duly signed receipt stating the kind, quantity and condition of freight so received by the Truck Line. Said freight shall thereafter be safely and promptly transported as herein provided and delivered by the Truck Line to the Railroad Company at the station or stations to which it is waybilled or otherwise consigned, or to the A. & B. Railroad Company (a connecting line) at.....
as hereinafter provided, whereupon the Railroad Company, in

independent contractor, of certain freight to, from and between the stations of the Railroad Company, hereinafter mentioned, and the Truck Line is willing to enter into such contract,

NOW, THEREFORE, The parties hereto in consideration of the promises and agreements of the other, herein contained, the case of deliveries to its stations, shall deliver to the Truck Line a duly signed receipt stating the kind, quantity and condition of freight so delivered by the Truck Line, and as to deliveries by the Truck Line to the A. & B. Railroad Company as herein provided, the Truck Line agrees to procure from it such a receipt for all deliveries so made.

All freight so transported by the Truck Line from any of said stations to.....
for transportation beyond routed via the A. & B. Railroad, and all freight received at the Railroad Company's station in.....
for transportation beyond routed via the A. & B. Railroad, shall be delivered by the Trucks of the Truck Line to the freight station of the A. & B. Railroad in said.....
and the aforesaid receipt taken and returned to the Railroad Company.

SECOND: The schedule of operations and number of trucks operated by the Truck Line shall at all times be subject to change and approval by the Railroad Company, to the end, intent and purpose that reasonably adequate, prompt and efficient service may be maintained and performed by the Truck Line for the transportation of said freight. Until hereafter changed by said Railroad Company the Truck Line agrees to provide one new truck of five tons capacity with covered body seventeen feet in length, seven feet in height and seven feet in width, and to station of the A. & B. Railroad in said.....
south to.....
and return to.....
on Monday, Wednesday and Friday, and from.....
north to.....
on Tuesday, Thursday and Saturday, of each week, via the intermediate stations above named, calling at each thereof on all trips.

THIRD: The transportation service so to be performed by the Truck Line shall include the loading and unloading of all freight so transported at each of the stations aforesaid, but the Railroad Company agrees that its appropriate employee or employees at such stations may render for the account of the Truck Line, such assistance in connection with such loading and unloading as the Railroad Company shall, under the conditions obtaining at any station deem to be warranted, as to all of which the Railroad Company shall be the sole judge. The Truck Line agrees to employ on each truck so operated in the transportation of such freight, a driver and one helper.

FOURTH: The Truck Line hereby assumes and agrees to bear and discharge toward the Railroad Company the same liability, duty and responsibility for the safe and proper transportation of said freight while in the custody of the Truck Line, as is imposed upon and borne by the Railroad Company as a common carrier under the law toward the shipper, owner or consignee of said freight, and also to indemnify and save the Railroad Company harmless of and from any and all loss, damage, injury, (including injury to or resulting in death of any employees of either party or other persons whomsoever) suits, claims, demands, judgments, fines, recoveries, penalties, workmen's compensation awards or payments, employer's liability and any other costs and disbursements whatsoever including attorneys fees (all hereinafter referred to as damage), in any way incident to or resulting from the performance or non-performance by the Truck Line of the aforesaid transportation service as herein contemplated, including damage arising out of or resulting from the employment or use of any employees or property of the Truck Line in said transportation service, also damage arising out of or resulting from any delay of, loss of, damage or injury to any freight so transported by or in the custody of said Truck Line, and also damage arising out of or resulting from any loss, damage or injury to any employees or property of the Railroad Company or third parties whomsoever.

FIFTH: It is expressly understood and agreed that the relation of the Truck Line to the Railroad Company under all the provisions of this agreement shall be that of an independent contractor, and that neither the proprietors of said Truck Line nor any of its servants, agents or employees, shall at any time or under any circumstances, be deemed to be the servants, agents or employees of the Railroad Company. The rendition and performance of the transportation service herein contemplated shall, within the scope of the requirement of this contract, be at all times and in all respects under the control, management and direction of the Truck Line as such independent contractor.

SIXTH: The period of the liability and responsibility of the Truck Line as herein provided, shall commence as and when each package, parcel or other unit of said freight is taken or moved from its place or pile in the Railroad Company's freight station preparatory to being placed on the Truck Line's truck, and continue until it has been properly transported to its consigned truck destination and removed from the truck and securely and properly placed or piled in the freight station at said destination.

SEVENTH: The Truck Line agrees, at all times, to carry and keep in effect, transportation or cargo insurance on the freight so transported by it, and also compensation insurance covering said parties of the second part, their agents, servants and employees engaged at any time in the performance of any part of the Truck Line's service under this contract, and general accident and liability insurance, all in such amount or amounts as from time to time shall be satisfactory to the Railroad Company, and upon demand to exhibit to the Railroad Company the policies therefor, and further agrees to deliver to the Railroad Company a satisfactory corporate surety bond in the sum of $10,000.00 conditioned upon the full and faithful performance of the Trunk Line's obligations hereunder, but neither said insurance nor said bond shall be held or construed to limit or restrict the Truck Line's full liability under the terms of this contract.

EIGHTH: In consideration of the performance by the Truck Line of all of the terms and conditions of this agreement, the Railroad Company agrees to pay to the Truck Line the sum of dollars for each complete one-way southbound trip from.....
to .....
and return to.....
made by each truck of the Truck Line, and a like sum for each complete one-way north-bound trip from.....
to .....
made by each truck of the Truck Line.

NINTH: If either party shall violate or fail to keep any of the covenants or conditions herein contained on its part to be kept and performed, this agreement may be forthwith terminated by notice to that effect from the party not in default to the defaulting party, otherwise it shall continue in full force and effect from (date of contract), until terminated by thirty days' written notice of termination from either party to the other.

TABLE 4

Savings effected on Seneca Division by installation of motor truck service between Geneva and Ithaca

January, 1926

Abolition of Ithaca branch local freight..... 26 days at $128.54 per day Wages of crew, $58.47 Loco. exp. 77 miles at 91 cents per mile $70.07	$3,342.04
Saving of 27 cars at Manchaster Tfr (frt. for Old Road points now being loaded in the Geneva car and trucked from Geneva) and 33 cars at Geneva or a total of 60 cars, 3 days per car—180 car days	180.00
Saving of 17 cars at Ithaca which originally were loaded to Old Road points 3 days per car—51 car days.....	51.00
Total	$3,573.04
Less cost of operation of motor truck.....	1,144.00
Actual saving	$2,429.04

Tonnage handled, 314,189 lb.
Pieces, 4,599
Gross rev. $1,080.72

Lehigh Valley Railroad Company FORM T-M 10-25-25M

SHEET NO. 15

STATEMENT OF FREIGHT TRANSFERRED BY Motor TRUCK NO. 4

FROM Canastota, N.Y. TO Oneida, N.Y. DATE January 30th, 1926

WAYBILL REFERENCE FROM	TO	NO.	DATE	PIECES	WEIGHT	REVENUE
Le Roy, N.Y.	Sidney	3269	1-22	35	385	1.66 Paid
Le Roy, N.Y.	Middletown	3270	1-22	12	300	1.45 Paid
Pittsburgh, Pa.	Rome, N.Y.	11695	1-19	1	255	1.75
Pittsburgh, Pa.	Rome, N.Y.	11771	1-19	1	208	1.60
Pittsburgh, Pa	Liv Manor	11697	1-19	1	100	.75 Paid
Ithaca, N.Y.	Smyrna	887	1-25	4	190	94
Le Roy N.Y.	Morrisville	3544	1-25	4	300	1.25
Manchester	Delhi	505	1-20	1	100	Astray
Le Roy, N. Y.	Monticello	3547	1-25	3	75	.61
Le Roy, N Y	Ellenville	3541	1-25	2	100	.59
Le Roy, N. Y.	Edmeston	3543	1-25	5	260	1.13
			TOTAL	69	2270	11.42

RECEIVED FREIGHT IN GOOD ORDER, (EXCEPT AS NOTED BELOW)

AGENT

CONTRACTOR RAILROAD

DRIVER AGENT

EXCEPTIONS.

Fig. 2

TENTH: The Truck Line shall not assign, underlet or otherwise transfer all or any of its rights, duties or obligations hereunder without the written consent of the Railroad Company.

Any waiver at any time of the rights of the Railroad Company as to anything herein contained shall not be deemed a waiver of any breach of covenant or other matter subsequently occurring.

IN WITNESS WHEREOF the parties hereto have duly executed this agreement the day and year first above written.

(The usual signatures, seals and notary's statement.)

Motor truck operations are under the direct supervision of the division superintendents. General supervision is exercised by J. N. Haines, superintendent of transportation, assisted by M. J. Lynett, supervisor of stations and transfers, to which officers the *Railway Age* is indebted for information contained herein.

Effect of Fares on Rail and Bus Traffic*

By R. R. Smith

Vice-President and General Manager, Chicago, South Bend & Northern Indiana

IN June, 1925, we decided to begin a series of experiments with interurban equipment and with our rate of fare. Our object was to ascertain the effect on the volume of traffic of a new type of interurban car and of a lower rate of fare than our basic three cents per mile.

We placed in service two interurban parlor cars equipped with individual chairs, carpeted floors and a new lighting system. On one interurban division we established an excursion rate of 1½ cents per mile with a 25 per cent reduction for commutation runs. On another division we established an excursion rate of 2 cents per mile with the same reduction for commuters, and on our third division we maintained our old basic rate of 3 cents per mile. All rates were made good for single one-way trips on every train and on account of the fact that commutation tickets were being sold by the drivers of competitive buses, we placed commutation books in the hands of our conductors so that passengers need not be put to the inconvenience of going to any of our stations to purchase them. The rate of fare on buses was made the same as on the interurbans. We were therefore in a position to study the effect on travel of three different rates of fares and also in a position to study the effect of having interurbans and buses operating at the same rates of fare.

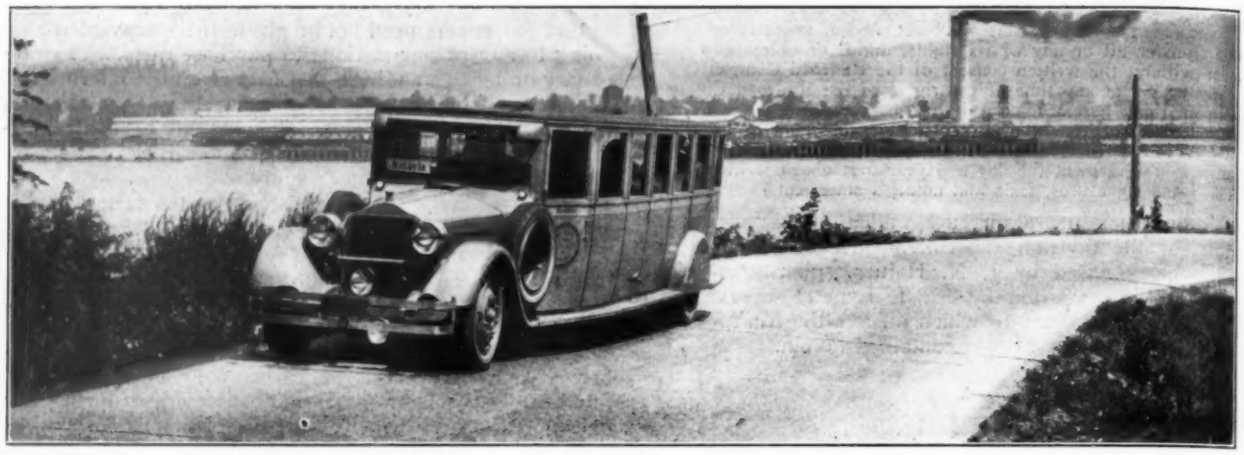
From the day it was established the 1½ cent per mile rate showed for a period of three months an increase of 92 per cent in the number of passengers carried by interurban lines. The 2 cent rate showed an increase of approximately 70 per cent, while the number carried on the 3 cent rate showed a consistent decrease. Buses at the 1½ cent rate showed practically the same increase in the number of passengers as the interurban. From the increased number of passengers carried it was evident during this period that many owners of private automobiles put up their cars and made use of either the bus or the interurban.

We have continued our experiments with our interurban rates, using 2 cents per mile on interurban cars and 2½ cents per mile on our buses with 25 per cent reductions in commutation rates. With these rates of fare in effect we showed in the months of November and December, 1925, an increase in the number of interurban revenue passengers of more than 60,000 compared with the same months of 1924. The number of passengers carried on our inter-city buses, however, has shown a steady decrease since the establishment of the 2½ cents per mile rate. It seems evident to us that the rate of fare charged is a very considerable factor in determining the distribution of traffic as between interurbans and buses.

Lehigh Valley Motor Truck

*Abstract of discussion before Central Electric Railway Association at Indianapolis, Ind., on January 29.

"IT IS MY THOUGHT that the motor bus, the truck and particularly the private automobile occupy a position all their own in our present day life. Unquestionably they have opened up new territory to the railroads which I believe will constantly increase its value. It seems to me that the attitude of the railroads should be one of seeking to co-ordinate bus and motor truck service to the service of the carriers."—E. E. Loomis, President, Lehigh Valley.



A Sedan Type Portland-Astoria Bus of the S. P. & S.

S. P. & S. Operates Fleet of 30 Motor Buses

Highway units supplement rail service between Portland, Ore., and Seaside—Cost of operation and results

MORE than two years ago the Spokane, Portland & Seattle began the operation of motor buses to supplement the train service on its line from Portland, Ore., to Seaside. Starting in a small way, this service has been developed and expanded until today it operates 30 motor buses of various types which make 11 scheduled trips each way daily along the Portland-Seaside line. This service is being provided at an average cost per bus mile of 18.26 cents, the average revenue per bus mile being 20.01 cents.

In the year ended December 31, 1925, 16,901 one way trips were made along the 125-mile route, the average number of buses operated being 15 and the number of bus miles operated, 904,073. The buses carried 234,036 revenue passengers, the number of revenue passengers carried one mile being 7,017,609 and the number of revenue passengers carried one mile per mile of route being 56,140.87. An average of 7.76 revenue passengers were carried per car, the average miles per passenger carried being 29.99.

Highway Parallels Railway Between Portland and Seattle

The total passenger revenue secured through bus operations last year was $180,902.98. The average revenue per passenger was 77.30 cents, the average revenue per passenger mile being 2.58 cents. The average revenue per mile of route was $1,447.22, the average revenue per car mile being 20.01 cents. There was an additional revenue from the handling of express matter of $3,643.56.

The total operating expenses incurred through the operation of motor buses last year were $165,096.01. The average cost per bus mile was 18.26 cents and the average cost per passenger mile 2.35 cents.

Growth of S. P. & S. Bus Service

The Spokane, Portland & Seattle entered the bus operating business in order to meet competition. In this respect its position was analogous to that of nearly every railroad in the United States. Its line between Portland and Seaside is closely paralleled by a surface highway of the most modern construction. This highway, like the railway, serves the thickly populated lumber and resort regions from Portland west to the Pacific coast. There are 40 towns on the S. P. & S. between Portland and Seaside, a distance of 125 miles, an average of one every three miles. Included in these are a number built up around the lumber producing area immediately west and north of Portland, and such resort centers as Rainier and Clatsop Beach.

Strong competition from independent motor bus operators began to develop along this portion of the S. P. & S. system about three years ago. Independent operators were particularly attracted to this section on account of the excellent roads available, the heavy travel incident to the movement of men employed in lumbering work and the constantly heavy business between Portland and the mountain and seaside resorts.

The independent buses were able to maintain schedules almost as fast as those of the trains on the railways and,

on account of their access to business centers, their ability and willingness to make frequent stops to take on and discharge passengers, and their much more frequent departing and arrival times, they developed a considerable traffic within a short time. In consequence of this and of the increased use of private motor cars, travel on the trains of the S. P. & S. steadily diminished.

Trend of Passenger Revenues

The downward trend of passenger revenues on the Spokane, Portland & Seattle is shown in the tabulation below:

Year	Passenger Revenues
1921	$1,831,501
1922	1,723,494
1923	1,788,118
1924	1,506,089
1925	1,460,000 (est.)

It is obvious that the Spokane, Portland & Seattle has been suffering in the same way as virtually all other railroads in its declining passenger revenues. This was particularly marked between 1923 and 1924 when the passenger revenues declined from $1,788,118 to $1,506,089, the difference being $282,029 or approximately 15 per cent. There was a further decrease in 1925 as compared with 1924, the exact amount being indefinite on account of the necessary estimate of the passenger revenues for the last month of last year. The decrease last year as compared with 1924, however, will be much less than that of the previous year and will probably be less than $50,000 or a decline of approximately 3 per cent.

The fact that passenger revenues are still declining in spite of the extensive motor bus operations of the Spokane, Portland & Seattle might be construed as an indication that the buses have failed to accomplish their purpose, that is, stop the loss. It is necessary to point out, therefore, that the bus operations of the S. P. & S. were on a comparatively small scale until the middle of 1925, when they were more than doubled. Furthermore, bus operations are confined to one part of the Spokane, Portland & Seattle system, this part, 125 miles long, being less than one-fourth of the total mileage, 555 miles, of the railway.

Bus Operations Expand

When it determined to operate motor buses to meet the competition of independent highway passenger carriers more than two years ago, the Spokane, Portland & Seattle organized a subsidiary, the Spokane, Portland & Seattle Transportation Company, to carry on the provision of its highway service. A few buses were purchased and service was established supplementary to that provided by the railway trains between Portland and Seaside. In the beginning, the S. P. & S. bus line had to compete with a strong independent motor bus operator over exactly the same route, the effect of this being to create a wasteful duplication of service, reducing the revenues of both carriers. Furthermore, the competitive situation resulted in the operation of a service greatly in excess of the need of the community. The chances of financial success for the bus operations of both the Spokane, Portland & Seattle and its competitor, the Columbia Stages, were greatly prejudiced.

This situation continued to exist until June, 1925. At that time the S. P. & S. Transportation Co. negotiated with its competitor and made arrangements to absorb it. For a reported purchase price of $125,000 the S. P. & S. bus subsidiary secured the good will and physical assets of its competitor, the latter including 15 motor buses which the Columbia Stages had been operating. This additional equipment brought the rolling stock of the S. P. & S. Transportation Co. up to 30 buses. With these it was able to augment the service it had been providing, the increased service being nearly 100 per cent, while at the same time eliminating the wasteful competition for passenger business, and duplicate schedules. This move was beneficial to the S. P. & S. since it eliminated competition, effected an expansion of its operations without correspondingly increasing its overhead, and permitted a more extensive and satisfactory co-ordination of the railway and highway service. Its patrons, of course, were benefited by the greatly increased frequency of service and the fact that it was provided by a more financially responsible carrier.

Co-ordination of Service

At the present time the S. P. & S. Transportation Co. operates seven bus schedules each way daily between

SPOKANE, PORTLAND AND SEATTLE TRANSPORTATION COMPANY—MOTOR STAGE LINE

MISCELLANEOUS STATISTICS FOR YEAR ENDED DECEMBER 31ST, 1925

Miles of route operated	125.0
Number of one-way trips	16,901
Average number of cars operated	15
Number of car-miles	904,073
Number revenue passengers carried	234,036
Number revenue passengers carried one mile	7,017,609
Number revenue passengers carried one mile per mile of route	56,140.87
Average number revenue passengers per car	7.76
Average miles per passenger carried	29.99
Total passenger revenue	180,902.98
Average revenue per passenger (cents)	77.30
Average revenue per passenger mile (cents)	2.58
Average revenue per mile of route	1,447.22
Average revenue per car-mile (cents)	20.01
Total express revenue	3,643.56
Total operating expenses	165,096.01
Average cost per car-mile (cents)	18.26
Average cost per passenger mile (cents)	2.35

STATEMENT OF AVERAGE COSTS OF OPERATION FOR YEAR 1925

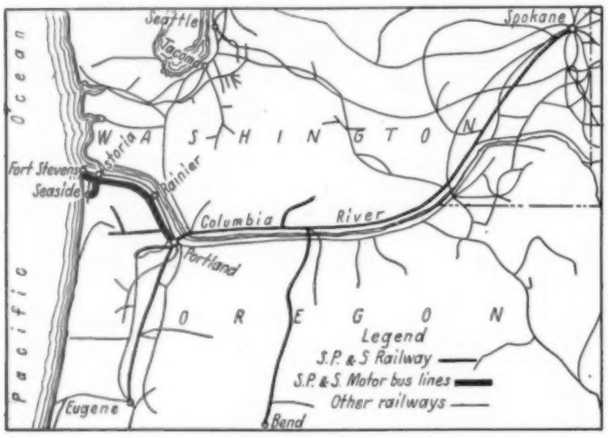
Operating expenses	Total	Average costs—(cents) Per car mile	Per passenger mile
Conducting transportation	$73,947.72	8.17	1.05
Maintenance	60,149.61	6.65	.85
Traffic	5,350.62	.60	.08
General	25,648.06	2.84	.37
Total	$165,096.01	18.26	2.35

STATEMENT OF OPERATING EXPENSES FOR YEAR 1925

Conducting transportation—	
Superintendence of transportation	$9,830.05
Wages of drivers	28,431.63
Gasoline and oil	17,442.36
Station employees	2,983.65
Station expenses	640.76
Damages—freight and baggage	57.30
Garage labor and expenses	13,014.83
Other transportation expenses	541.16
Leased cars	1,006.00
Total, conducting transportation	$73,947.72
Maintenance—	
Buildings	$89.10
Shop equipment	318.77
Cars and equipment—	
(1) Tires and tubes	13,380.61
(2) All other	13,190.16
Depreciation—	
(D) Passenger and freight cars	33,170.97
Total maintenance	$60,149.61
Traffic—	
Superintendence and soliciting	$300.63
Advertising	5,049.99
Total traffic	$5,350.62
General—	
Salaries and expenses of general officers and general office clerks	$3,279.66
General office supplies and expenses	2,408.49
Insurance	2,891.98
Injuries and damages	8,348.09
Law expenses	145.00
Rent of terminal facilities	8,519.74
Rent of equipment	32.00
Other general expenses	23.10
Total general	$25,648.06
Grand total operating expenses	$165,096.01

Portland and Astoria, and Astoria and Seaside. In addition, three bus schedules are operated daily each way between Portland and Rainier, another is being operated in a daily round trip between Portland and St. Helens, and another between Astoria and Fort Stevens. Only two passenger trains are operated on the railway daily from Portland to Seaside and return. The departing time of these trains from Portland, 8:10 a. m. and 6 p. m., fill gaps in the bus schedule, one such gap being from 7:30 a. m. to 9 a. m. and the other from 4 p. m. to 7 p. m.

The buses of the S. P. & S. Transportation Co. are



S. P. & S. Railway and Bus Lines

not operated through from Portland to Seaside. There is a division point or terminal at Astoria, 105 miles from Portland and 20 miles from Seaside, where all buses are turned back either to Portland or to Seaside. Buses are operated on the Portland to Astoria division at about two-hour intervals throughout the day from 7:30 a. m. to 12 midnight. These are turned back to Portland from Astoria. On the Astoria to Seaside division buses maintain a similarly frequent schedule from 7:10 a. m. to 7:15 p. m., direct connections for Seaside passengers being made with three of the buses from Portland at Astoria. Eastbound, four Seaside to Astoria buses connect at Astoria with through buses to Portland. Reference to operations of the S. P. & S. Transportation Co. as being from Portland to Seaside, therefore, do not mean that buses are operated through from terminal to terminal over this route, but that bus service is provided over its entire length.

The running time of the buses from Portland to Astoria, 105 miles, is 5 hours and 10 minutes, from Portland to Seaside via connecting buses, 6 hours and 20 minutes. Approximately the same running time is maintained on the eastward schedule from Seaside to Astoria and Portland. This compares with a running time on the railway as follows: The limited train from Portland to Astoria, 3 hours 35 minutes; Portland to Seaside, 4 hours 30 minutes; the local train from Portland to Astoria, 3 hours and 55 minutes; Portland to Seaside, 5 hours. Eastbound from Seaside to Portland the running time of both railway trains is approximately 10 minutes faster. The average speed of the motor buses between Portland and Seaside is thus a little more than 19 miles an hour, compared with an average speed of the local train of 25 miles an hour.

Operating Plan

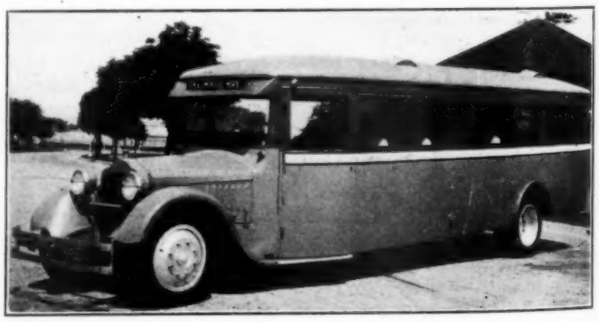
The operations of the Spokane, Portland & Seattle Transportation Co. are administered by the following officers who serve in similar capacities with the Spokane, Portland & Seattle Railway: President, W. F. Turner; secretary and controller, Robert Crosbie; general manager, A. J. Davidson; general passenger agents, R. H. Crozier. Similarly the supervision of the operation and maintenance of the buses of the subsidiary company is under the jurisdiction of the various departmental officers of the railway.

In general, the S. P. & S. buses make stops at stations on the railway where the highway intersects the railway. This is the case at Houlton, Goble, Rainier, Astoria and Seaside. At points not common to the railway and the highway, the bus company has arrangements with hotels or restaurants under which waiting rooms are available for passengers. At Portland the buses do not start from the railway station, leaving instead from the municipal stage terminal which is not far distant from the railway station. Rest rooms for passengers on the buses are located on the stage line at St. Helens, Rainier, Clatskanie, Astoria and Seaside. Regular stops are made at these points by all buses.

Bus line tickets are honored on trains between points served by both buses and trains. Railway tickets, however, are not good for transportation via motor bus except in the case of one-way tickets between points east of Astoria and points on the Fort Stevens line which are honored on buses between Warrenton and Fort Stevens line stations. This exception is made because there is no railway service to points on the Fort Stevens bus line. The general rule which fixes the rates for transportation on the buses is that they shall be the same as the tariff rates for rail transportation in the territory covered by bus operations.

Equipment

The fleet of buses owned by the Spokane, Portland & Seattle Transportation Co. comprises the following types: 11 sedan motor buses manufactured by the White Company on its chassis, Model 50-A, having a capacity of 22 passengers; 15 sedan buses on the White chassis, Model 15-45, having a capacity of 18 passengers; 3 pay-enter parlor car type motor buses on the White chassis, Model 50-A, with a capacity of 21 passengers, and 1 pay-enter parlor car type motor coach of the same manufacture and chassis, with a capacity of 25 passengers. All 30 of the motor buses are required for service during the months from June to September, only 20 of them being kept in service during the remainder of the year. All the buses carry baggage and express, and mail is carried on three of the schedules.



Parlor Type of Bus of Which the S. P. & S. Operates Four

The Model 50-A White bus chassis has a four-cylinder engine, mechanical service and emergency brakes operating on the drive shafts and on the rear wheels, and 32-in. by 6-in. pneumatic tires on both front and rear wheels, the rear wheels being dual. The wheel base is 198 in.

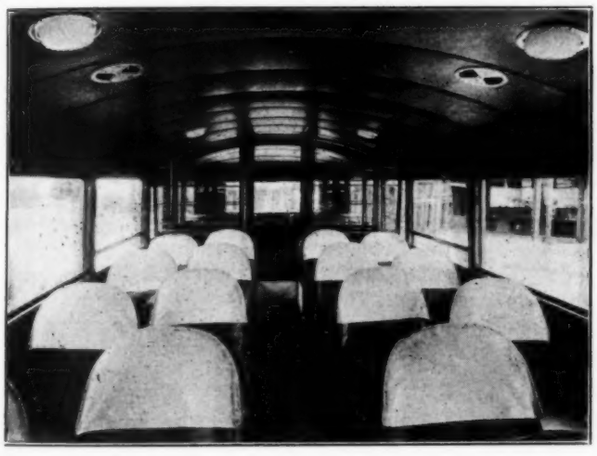
The bodies of the S. P. & S. sedan type buses have a

height inside of 64 in., the seats being 32 in. from back to back. The seats extend across the full width of the buses, access being obtained by means of doors situated on the right hand side opposite the space between the seats. In addition to the doors on the right hand side of the buses, there is a door for the driver on the left hand side at the front and an emergency door at the left rear.

The seats are covered with Spanish leather, the cushions and backs are of spring construction stuffed with hair. These buses have two ventilators in the roof, operating from the inside, heat being supplied from the exhaust. Light is furnished by dome lights.

There is a baggage compartment inside the bus at the rear, measuring 30 in. by 46 in. by 65 in. This is protected on the inside by a screen and bars. The baggage compartment is also equipped with folding seats which can be put into use for extra passengers when the space is not occupied by baggage.

The parlor type buses of the Spokane, Portland & Seattle are distinguished by their individual seats which are covered with Spanish leather and fitted also with linen head



Interior of S. P. & S. Parlor Type Bus

rests. In addition, the parlor type buses are divided into two compartments by a partition and a swinging door, the rear compartment being reserved as a smoking section. Entrance to the bus is made by means of a door located at the front on the right hand side and thence to the seats through an aisle 12 in. wide. In addition to this door there is a baggage door on the right side over the rear wheels, and a driver's door at the front on the left side. The baggage compartment is located over the rear wheel housing and is large enough to accommodate about 30 suitcases or several trunks. In other respects the parlor type buses are similar to the sedan type. The bodies of all the buses operated by the Spokane, Portland & Seattle were manufactured by Alex. Christie & Co., Seattle, Wash.

The buses operated by the S. P. & S. subsidiary have no difficulty in maintaining their schedules regularly throughout the year. Severe weather in the territory served is infrequent, and when it does occur, it is of short duration and as a result has practically no effect on bus operations, either to obstruct them or to increase the cost of operation. During the past winter, for example, regular service has been maintained without any difficulty whatever.

Operating Costs

The average cost of operation of the motor bus line of the Spokane, Portland & Seattle Transportation Company and a detailed statement of operating expenses for the year 1925 are given in accompanying tabulations. One table shows a statement of average costs of operation last year. This indicates that operating expenses in 1925 amounted to a total of $165,096.01. This was divided as follows: Conducting transportation, $73,947.72, maintenance, $60,149.61, traffic, $5,350.62, and general, $25,-648.06. The average costs per car mile were, for conducting transportation, 8.17 cents, for maintenance, 6.65 cents, for traffic, 0.60 of a cent and for general expenses, 2.84 cents. Average costs per passenger mile were, for conducting transportation, 1.05 cents, for maintenance, 0.85 of a cent, for traffic, 0.08 of a cent, for general, 0.37 of a cent. The average operating expenses per car mile last year were 18.26 cents, per passenger mile, 2.35 cents.

The other table showing a statement of operating expenses for the year 1925 gives in detail the items of cost grouped under the four general heads. These expenses are shown for operations as a whole and are not reduced to averages of expense per car mile or per passenger mile. Under the head of conducting transportation the following expenses are included: Superintendence of transportation, $9,830.03; wages of drivers, $28,431.62; gasoline and oil, $17,442.36; station employees, $2,983.65; station expenses, $640.76; damages—freight and baggage, $57.30; garage labor and expenses, $13,014.83; other transportation expenses, $541.16; leased cars, $1,006.00.

Under the head of maintenance, the expenses were as follows: Buildings, $89.10; shop equipment, $318.77; tires and tubes, $13,380.61; other expenses for cars and equipment, $13,190.16; depreciation, $33,170.00.

Traffic expenses were divided as follows: Superintendence and soliciting, $300.63; advertising, $5,049.99.

The following made up the total of general expenses: Salaries and expenses of general officers and general office clerks, $3,279.66; general office supplies and expenses, $2,408.49; insurance, $2,891.98; injuries and damages, $8,348.09; law expenses, $145; rent of terminal facilities, $8,519.74; rent of equipment, $32; other general expenses, $23.10.

Results of Operation

It has been impossible as yet to judge definitely what effect on the passenger business of the S. P. & S. the inauguration of motor bus service has had. This has been due to the fact that prior to June, 1925, the company operated only a small number of buses over part of the route between Portland and Seaside. Since that date the S. P. & S. has operated the only bus line in that territory so that the test period, which did not really begin until June of last year, is only nine months under way.

Certain definite results, however, are apparent. The S. P. & S. has re-established itself as the sole transportation agency in its territory between Portland and Seaside. It has thus been able to maintain its prestige in that territory. It is furnishing its patrons with a much more complete transportation service than it rendered prior to the inauguration of bus service and it is doing this without a direct out of pocket loss from such operations. It has been able to reduce its train service to a certain extent, thus reducing the heavy losses that have been incurred by the provision of a more extensive service on its rails. Finally, it is learning for itself how far it can go toward giving its patrons the service their convenience requires while keeping the cost of providing such service within limits which will permit a return on the money invested in its properties. The management still views the operations of the S. P. & S. Transportation Company as an experiment upon which they will base their decision as to any future course.

The Rumanian railways will have financial autonomy, that is, they will be separated from the national budget upon which they have been a continuous drain ever since the war.

Chicago & Alton to Operate Buses

Initial installation on two routes—Comprehensive survey leads to new departure

THE Chicago & Alton will begin early this spring to supplement its passenger train service by the operation of motor buses. Starting such operations in an experimental way the Alton expects to expand its highway passenger service over its entire system if the first installation proves to be successful.

The initial motor bus installations will be parallel to two sections of its line. The first route will extend from Jacksonville, Ill., to St. Louis, Mo., paralleling the secondary main line between Chicago and St. Louis, which runs via Jacksonville. The other route to be established this spring will be between Springfield, Ill., and Joliet, paralleling the main Chicago-St. Louis trunk of the Alton.

The first bus line, that between Jacksonville and St. Louis, will be 94 miles long. As is the case all over the Alton territory, the railway is paralleled closely by an excellent surfaced road. As a result of this, the Alton buses will be able to serve all of the towns on this section of its lines which are now reached by train. The distance between Jacksonville and St. Louis via the highway is almost exactly the same as that by rail.

The Jacksonville-St. Louis route will serve a number of towns of fair size, including Murrayville, Roodhouse, White Hall, Jerseyville, Alton and East St. Louis. The competition between the Alton and independent motor bus operators in this vicinity has been particularly keen on account of the excellent roads and the comparatively dense population. The Alton has been successful in obtaining injunctions restraining such competitive operations in several instances but this has served only to diminish rather than eliminate highway competition in this vicinity.

The other bus line which the Alton will establish soon will be considerably longer than that from Jacksonville to St. Louis. The distance from Joliet to Springfield via the Alton main line is 148 miles, the distance by highway which parallels the railway for the entire distance being approximately the same. This route will lie along the main trunk highway between Chicago and St. Louis which is now used by a number of competing bus lines. The population in this vicinity also is rather dense, this line serving a number of fairly large towns including Gardner, Dwight, Pontiac, Bloomington and Lincoln.

Schedules Not Yet Determined

The schedules on which Alton will operate its buses on these two routes have not yet been worked out. These are now being tentatively prepared but they will have to wait, before taking definite form, until application has been made to the Illinois Commerce Commission for certificates of convenience and necessity to operate the routes and until the decision of the commission on the applications has been reached.

The present plans of the Alton call for the following procedure. Application will be filed for a charter for a subsidiary motor transportation company to carry on the bus operations of the Alton. As soon as this charter has been received the subsidiary company will make application to the Illinois Commerce Commission for the necessary certificates of convenience and necessity to operate motor buses as common carriers. Actual operation of the buses will start immediately after such permission is forthcoming.

At the outset, the Alton expects to operate two large motor buses on the line from Jacksonville to St. Louis and three somewhat smaller buses on the line between Springfield and Joliet. The buses will operate on a schedule approximately the same as that now maintained by local passenger trains between these points. In addition to stops which will be made at all stations on these lines, the buses will also pick up and discharge passengers at principal hotels and in business centers where these are not adjacent to the stations, thus providing the same convenient service which is rendered by independent bus operators.

Although an attempt will be made to reduce train service to some extent in order to offset the bus mileage which will be operated, it is thought that little can be done in this direction. If this can be accomplished, however, motor buses will operate on the schedules of the trains eliminated and the purely supplementary nature of the bus service will be lessened to that extent. If no more trains can be removed the schedules of the buses will be arranged to shorten the time that now elapses between trains on the two routes. The bus service will thus be entirely supplementary and will be operated with the sole purpose of suiting the convenience of the Alton's patrons and bettering the service it renders them.

The present plan is to have the operations of the motor buses supervised entirely by officers of the railroad. The buses will be housed and maintained in the enginehouses and shops now used exclusively by railroad equipment. Overhead expense incident to the establishment of additional service will thus be kept at a minimum and the cost of the additional service, aside from interest on the investment, will be almost exclusively confined to the direct operating and maintenance cost of running the buses. The Alton's motor buses will be manned, wherever possible, by its own employees now assigned to duties in train service. Although the rates that will be charged for transportation in the motor buses have not yet been fixed, the expectation is that they will be the same as the rail rates for the same distances and that tickets sold will be interchangeable and good for transportation on either trains or buses.

Committee Studies Local Passenger Situation

The conclusion to operate motor buses was reached after the findings of a committee appointed to study the local passenger situation had been considered. The Alton's studies have extended over a period of 2½ years although the committee appointed to go into the situation thoroughly has been functioning only within the last few months. The committee gave attention first to motor bus service as a competitor of steam railway service and second, to possibilities in the use of rail motor cars to replace steam locomotives in light local or branch line service.

The committee was composed of three officers, X. H. Cornell, superintendent of terminals at Chicago, G. C. Seidel, superintendent of motive power and equipment, and W. F. Rech, bridge engineer. The management knew by experience that there had been a decided loss in the amount of passenger business carried on its trains. The trend of the Alton's passenger business is indicated in the tabulation below.

In its investigations the Alton's committee found that

its local passenger business had been taken from it by the private motor car and the competitive independent motor bus, as had been the current belief. An interesting development of this survey, however, was that the committee found that by far the greatest part of this loss in passenger business had been taken by the private motor car rather than by the motor bus and that a considerable part of the traffic now going via motor bus has in turn been taken away from the private motor car. It was found that this has been due to the fact that the more frequent schedules of motor buses have made the immediate availability of the private motor car a less important factor to the average patron, and the much greater expense of transportation by private motor car as compared to transportation by motor bus, a more important factor. The committee found also that in some instances perishable freight in considerable quantities was being handled regularly by motor trucks instead of by trains as was formerly the case.

ALTON'S PASSENGER TRAFFIC AND REVENUES

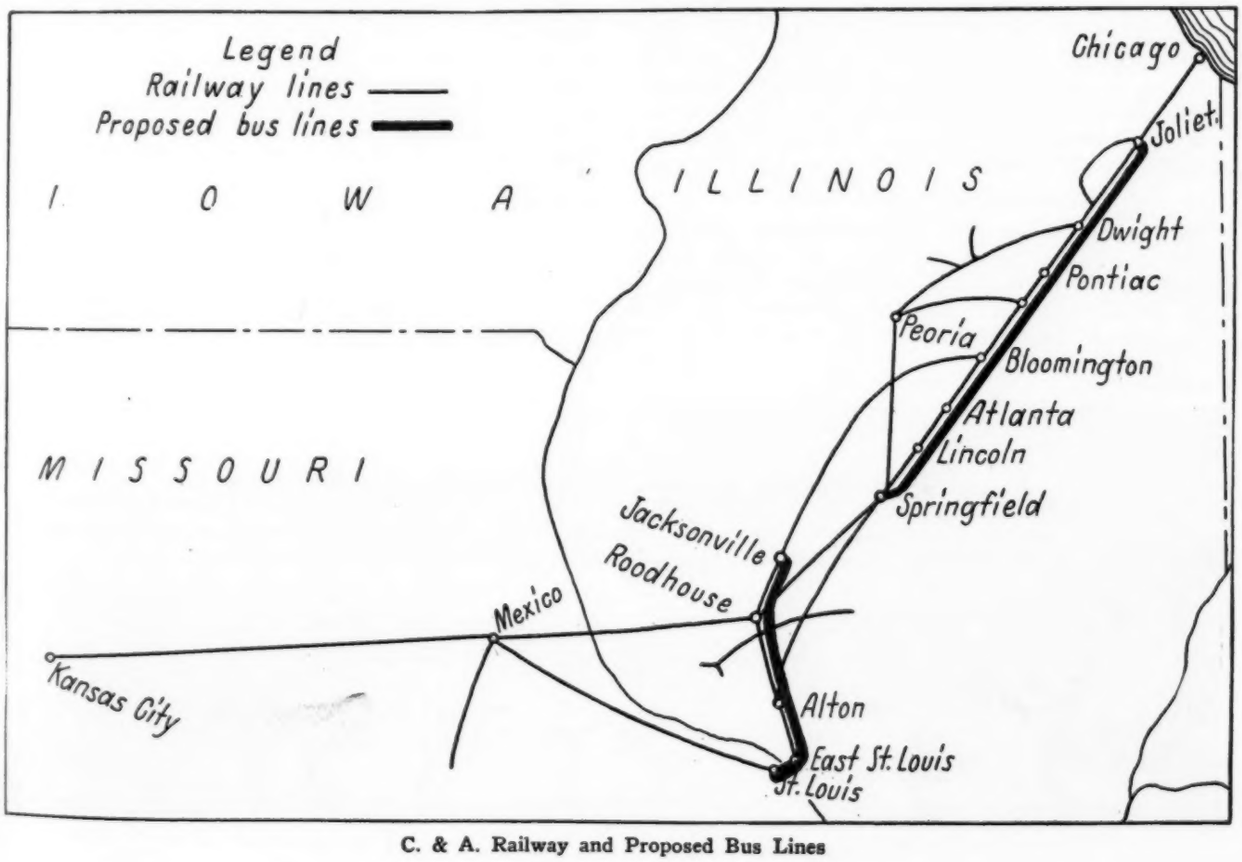
Year	Passengers Carried	Passengers Revenues
1920	3,594,991	$6,950,981
1921	3,077,637	6,832,644
1922	2,575,081	6,068,799
1923	2,796,142	6,858,010
1924	2,597,651	6,431,465
1925	.....	(est.) 6,300,000

After it had determined what the situation actually was, the committee of officers, together with local traffic and operating officers, began to study possible means of correcting the situation. As thorough investigation as possible was made of all motor buses now in general use to determine their durability, their carrying capacity and operating cost with the idea of finding the best type available. The Alton wanted a bus with a seating capacity of approximately 30 passengers and with room when necessary in emergency for as many as 45 passengers, the additional ones requiring standing space which would not be too uncomfortable over a short period of time. This capacity was wanted because it is a fair average of the number of passengers that now use three or four-car passenger trains. After giving thorough consideration to information available as to the cost of operating motor buses, the committee decided that they could be operated in Alton territory for from approximately 25 to 28 cents per bus mile. This cost includes a reasonable depreciation or replacement charge for the upkeep of the equipment and the directly allocated operating costs but does not include interest on the investment, taxes, general expenses or maintenance of way expense.

Rail Cars Considered

At the same time that it was studying the possibilities of the motor bus, the Alton's investigating committee went also into the question of the adaptability of the rail motor car to its needs. Composed as it was of an operating officer, a mechanical engineer and a civil engineer, the committee was capable of judging operating conditions, capacity or tractive effort, the reliability and life of motor car equipment and the adaptability of the cars to the various grade lines, curvature, etc., found on the Alton. The Alton's needs, they believed, would be filled by a motor car, either straight gasoline-driven or gas-electric driven, that would successfully handle a good sized, two-car passenger train capable of carrying a reasonable amount of express, baggage, poultry, milk and such perishable shipments that must be handled promptly to the larger markets, with also at least a 15-ft. working compartment for United States mail and with a seating capacity for about 45 to 60 passengers.

The committee pursued its studies not only on the



C. & A. Railway and Proposed Bus Lines

Alton, but on a number of other railroads that have been using rail motor cars in order to ascertain the cost of operation of such equipment, the weaknesses in the construction of these cars and how they might be improved or strengthened, how frequently they fail, making it necessary for the steam equipment to go out and bring them in, the cost of fuel, the normal maintenance charges, and the approximate life of this equipment compared with that of the steam locomotive.

The committee found that such a combination train of a rail motor car and a trailer could be successfully and reliably operated on 1 per cent grades at a cost of from 36 to 40 cents per train mile. This includes directly allocated operating costs including maintenance, and a depreciation charge, but does not include interest upon the investment, taxes, general expenses, etc. The operation of steam locomotives in the same class of service on the C. & A. has been costing from 98 cents to $1.08 per train mile.

The Alton is now operating three rail motor cars of the gas-electric type, two on the line from Peoria, Ill., to Springfield, and one on the branch line from Mexico, Mo., to Cedar City. These operations have been very successful, having converted an operating loss into a net operating revenue on both of these lines.

For example, on the Mexico-Cedar City branch, in the 12-month period ended December 31, 1925, revenues per motor car mile were 66 cents and maintenance of equipment and transportation expenses 33 cents, leaving a net operating revenue of 33 cents per motor car mile. Passenger trains on this branch had previously been operated at a loss of approximately 40 cents per train mile.

On the line between Peoria and Springfield, the two rail motor cars had been operated for only five months on December 31, 1925, but in that period they earned 80 cents per motor car mile, the maintenance of equipment and transportation expenses being 34 cents per motor car mile, leaving net earnings of 46 cents per motor car mile. On account of the success of its initial use of this type of equipment, the Alton is adding to it constantly. With its rail motor cars and its motor buses the Alton hopes to be able to furnish a more frequent service at a cost considerably less than the cost of providing a less convenient service with passenger trains, and thereby to turn operating losses into net profits.

Statement of Alton's Plans

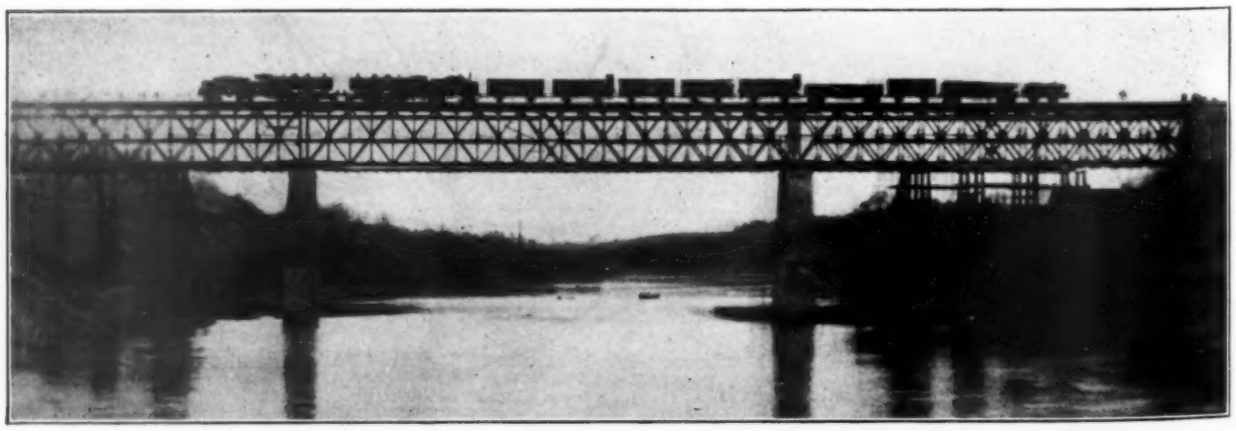
The purpose of the Alton in establishing motor bus service and adding to its rail motor car service is expressed in a statement given to the *Railway Age* by W. G. Bierd, president of the road. He summarizes the plans of the Alton in the following words:

"We are certain that the railroads can co-ordinate their steam service with the highway bus service to give the public what they want in a way that the privately owned and operated bus lines cannot do. The public will still have a local rail passenger service. It must have steam service for mail and express, for the movement of milk, poultry and such perishable commodities which must be handled daily or twice daily. The bus line cannot give this class of service and as the public cannot support both rail and highway service operated competitively, the railroad eventually would be compelled to take off a large amount of light passenger train service, and the shipping and traveling public would suffer accordingly.

"Many of the private bus lines which are now operating will continue to fail and go out of business until they learn more of the necessities and costs of this service, but others will succeed them and bus service will continue. Therefore, the Chicago & Alton proposes to go on the public highways in its territory. We propose to give the public—in other words, the towns, cities and rural districts in our territory—the service to which they are entitled and should have, and we believe that by so co-ordinating the two kinds of service we will save to our road the normal local passenger business we have carried in the past.

"For example, we will give the proper morning and evening steam passenger train service to handle local mail or express business and produce, such as poultry, eggs, butter, milk, etc., which goes to the larger centers daily. At other hours of the day we will operate a proper schedule of buses and in this way we may be able to take off a certain amount of steam service. The taking off of one steam train will generally permit the putting on of two bus trains, so to speak. The public will thus be given what it is entitled to and is willing to pay for. Much business will go to the public bus or privately owned automobile if the railroads do not provide this class of service.

"We expect to have several buses in service by early spring and from then on as experience teaches us we expect to grow into this service extensively. On the other hand, if our judgment has proved wrong, we will have made the error of only a small purchase. However, if it is successful, as we believe it will be, we will then have three classes of passenger train service: first, through and semi-through steam passenger trains such as we have always run; second, gas-electric or gasoline motor cars with trailers for purely local rail service; and third bus service which will have provisions to enable passengers to travel comfortably, i.e., ventilation, drinking water, toilet facilities, etc., which independently owned buses are not now furnishing."



Temporary Reconstruction of War Damaged Bridge in Poland

General News Department

New rules and instructions for the inspection and testing of locomotives, other than steam, and their appurtenances, have been promulgated by the Interstate Commerce Commission, effective on July 1, in accordance with the act of June 7, 1924. The code of rules has been agreed to at conferences participated in by representatives of the carriers, representatives of the employees and the chief and assistant chief inspectors of the Bureau of Locomotive Inspection.

A protest against the Canadian National going to Minnesota to purchase cedar ties for the Hudson Bay Railway was made in the House of Commons at Ottawa last week by W. W. Kennedy, a Conservative member from Winnipeg. This member had asked the railway about such purchase and he read to the House a letter from R. C. Vaughan, vice-president in charge of purchases, in which it was pointed out that only about 50,000 were so purchased and all from points on the C. N. R. "That is just 50,000 ties too many from the state of Minnesota," said Mr. Kennedy.

The Pennsylvania Railroad General Offices' Veteran Employees' Association, Philadelphia, Pa., held its fifth annual meeting on Thursday evening, February 18, the business session being followed by the light opera, "The Mikado," given by employees from the thirteen departments represented in the membership of the assiciation. This association now has a membership of about 1,900. All officers and employees who have been in the service 20 years are eligible. W. B. Kraft, auditor of revenues, was chosen president of the association for the ensuing year.

George M. Hunt, in charge of the wood preservation section of the U. S. Forest Products Laboratory, will sail for Europe early in March to make a survey of European wood preserving methods and to collect European service records on chemically treated railroad ties, pine timbers, posts and poles. Mr. Hunt will visit England, Belgium, France, Italy, Switzerland, Austria, Hungary, Czecho-Slovakia, Germany, Denmark, Sweden, Norway, Holland and possibly other countries. He will investigate the merits of a number of new wood preservatives recently developed in Europe as well as the methods used for impregnating wood with creosote, zinc chloride and other standard preservatives. Mr. Hunt will also attend the World's Forestry Congress which will be held at Rome, Italy, from April 29 to May 5.

A. R. A. Mechanical Division Committee Studies Electrified Lines

The committee on electric rolling stock, Division V, Mechanical, American Railway Association, headed by its chairman, L. K. Sillcox, general superintendent of motive power, Chicago, Milwaukee & St. Paul, on Wednesday, February 24, went over the electrified section of the Norfolk & Western. On Thursday and Friday, the committee inspected the Virginian electrification and on Saturday, looked over the Virginian's new coal pier at Sewalls Point, Va. Among the inspection party were J. W. Sasser, superintendent of motive power of the Virginian, A. Kearney, superintendent of motive power of the Norfolk & Western and J. V. B. Duer, electrical engineer of the Pennsylvania.

Pennsylvania Car-Shop Safety Records

"News As Is News" is the heading of a bulletin which has been issued by the safety department of the Philadelphia division of the Pennsylvania, announcing the fact that the maintenance of equipment department on that division "has established a wonderful record" during the year 1925. Sixteen shops or departments reported no accidents, and ten shops or departments reported one accident each. During the last half of the year three shops in the Harrisburg district showed decreases, as compared with the same period of 1924, as follows: Maclay Street (1,936 employees), 120 accidents last year, 76 this year; decrease, 37 per cent. Lucknow (557 employees), 28 accidents last year, 11 this year; decrease, 60 per cent. Enola (1,822 employees), 210 accidents last year, 42 this year; decrease, 80 per cent.

The scoffer is exhorted "to go and do likewise; *it can be done.*" And the final appeal, at the bottom of the page, is—

DOES THIS MEAN ANYTHING TO YOU?

Motor Truck and Bus Exhibit at Atlantic City

The interest which the railways have been taking in motor bus and truck transportation caused a number of manufacturers of motor trucks and buses to apply for exhibit space at the June conventions of the Mechanical and the Purchases and Stores divisions of the American Railway Association. The large demand for space on the part of machine tool builders had already made it necessary to provide for an exhibit annex, 50 ft. by 400 ft., at the street-end across the boardwalk from the Million Dollar Pier, for heavy machinery and machine tools. The space in what was formerly Machinery Hall on the Million Dollar Pier was required to meet the demands for additional space for miscellaneous exhibits.

The Exhibit Committee of the Railway Supply Manufacturers' Association, after surveying the entire situation, decided that a motor truck and bus exhibit space could best be placed in the space between the track exhibits on the Pennsylvania and the Reading tracks. This space will be cleared off and a concrete floor laid, covering about 20,000 sq. ft. of space. A substantial tent will be placed over this area. A tent arrangement was tried at the October meeting of the American Electric Railway Association, but did not prove very satisfactory because the tent was erected on soft ground; the concrete floor for the June conventions will overcome this objection.

Applications for space should be made to J. D. Conway, secretary, Railway Supply Manufacturers' Association, 1841 Oliver Building, Pittsburgh, Pa.

Southern Pacific Lunch Cars

The all-day lunch cars of the Southern Pacific, described in the *Railway Age* of February 13, page 446, are now being operated on five divisions of that road and the trains enjoying this new facility are now operated an aggregate of about 7,000 train-miles daily. Allan Pollok, manager of the dining cars, hotels and restaurants, has given us the following notes supplementary to our description:

"These lunch cars augment, but do not conflict with standard dining car service. Lunch cars are usually placed near the head end of trains, followed by other day coaches; and these by tourist cars. Dining cars are placed between tourist cars and standard Pullmans. The all day lunch car is, of course, a day coach and there is no extra expense for hauling. On ordinary trains one attendant suffices; but on extra heavy trains two are required. Announcement of lunch car service is confined to day coaches and tourist sleepers, while dining car service is announced in both tourist and standard Pullmans.

"The lunch-car attendants serve food in any part of train; but as a rule patrons prefer to visit the lunch car, where they are served at the counter, at two stationary tables and at small shelf-like tables that can be suspended from backs of seats throughout the car.

"The all-day lunch car has largely solved the problem of supplying passengers in day coaches and tourist cars with simple and inexpensive meals. The menu is confined to such foods as can be either carried in prepared form or can readily be cooked on the lunch-car gas range. The quality of the supplies is exactly the same as of the food furnished to standard dining cars; but low cost of operation makes lower charges possible."

Operating Statistics of Large Steam Roads—Selected Items for the Month of December, 1925,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotive and tender	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line daily: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1925	404	234,553	256,891	31,347	4,647	67.2	237,987	88,231	111	22	16.4	1
	1924	394	276,737	298,218	33,250	5,016	65.6	264,813	101,260	129	15	10.5	...
Boston & Maine	1925	2,316	491,580	569,219	53,648	12,085	69.0	606,734	236,093	342	96	21.9	51
	1924	2,348	515,099	593,531	57,827	12,025	68.2	620,430	248,886	333	123	27.0	35
N. Y., New H. & Hartf	1925	1,892	489,172	505,942	30,945	12,825	66.9	653,348	253,454	282	50	15.1	22
	1924	1,931	490,649	515,710	31,925	12,420	68.9	635,481	262,377	297	73	19.8	22
Great Lakes Region:													
Delaware & Hudson	1925	875	306,591	416,352	49,624	7,957	63.2	471,915	231,500	249	39	13.4	116
	1924	888	377,663	506,901	46,606	9,551	63.4	619,871	310,992	240	39	14.0	66
Del., Lack. & Western	1925	993	542,942	627,098	70,371	16,134	66.3	905,585	374,711	296	57	16.1	68
	1924	993	579,988	692,863	96,157	17,076	66.4	994,116	445,168	293	69	19.0	9
Erie (inc. Chic. & Erie)	1925	2,325	948,583	1,038,186	117,481	31,613	61.4	1,934,289	808,277	598	90	13.0	186
	1924	2,325	911,018	1,003,664	97,604	30,038	64.2	1,814,645	799,438	662	93	12.3	169
Lehigh Valley	1925	1,345	542,762	597,552	87,608	16,042	63.1	935,318	389,316	416	84	16.8	104
	1924	1,357	574,267	630,721	68,751	16,703	62.1	1,032,775	465,497	458	58	11.3	102
Michigan Central	1925	1,835	563,797	579,566	19,629	17,942	62.6	978,012	354,671	291	52	15.0	98
	1924	1,826	578,028	592,463	19,955	16,982	61.6	939,123	347,518	307	57	15.8	87
New York Central	1925	6,478	2,267,020	2,601,117	172,059	75,704	60.4	4,790,848	2,097,675	1,102	344	23.8	135
	1924	6,447	2,167,961	2,447,968	177,622	71,143	61.4	4,409,307	1,931,415	1,216	363	23.0	248
New York, Chic. & St. L.	1925	1,669	722,722	735,084	6,556	20,867	64.8	1,171,283	470,965	222	77	25.8	24
	1924	1,669	707,809	719,043	5,890	19,302	64.5	1,074,311	428,972	250	63	20.0	45
Pere Marquette	1925	2,198	454,506	461,967	6,561	10,423	60.8	613,549	263,430	189	25	11.8	14
	1924	2,200	393,482	401,531	9,031	8,788	62.8	525,661	245,661	192	25	11.6	21
Pitts. & Lake Erie	1925	231	135,838	136,981	1,237	4,329	61.3	325,534	181,941	69	13	16.2	23
	1924	231	130,403	131,225	2,210	4,362	62.0	339,780	198,257	65	21	24.3	9
Wabash	1925	2,497	759,145	791,832	12,856	21,202	65.1	1,210,738	494,614	319	60	15.8	45
	1924	2,497	674,048	709,683	10,756	19,303	68.8	1,070,504	452,535	290	54	15.8	22
Central Eastern Region:													
Baltimore & Ohio	1925	5,197	2,052,227	2,402,414	183,929	55,803	61.1	3,712,215	1,788,545	1,001	212	17.5	81
	1924	5,207	1,883,842	2,188,062	161,487	48,483	61.1	3,117,804	1,478,780	963	311	24.4	134
Central of New Jersey	1925	691	259,248	283,453	35,499	6,007	61.3	369,060	169,422	240	32	11.7	52
	1924	692	279,832	306,036	36,105	6,451	58.0	425,745	203,985	226	49	17.7	30
Chicago & Eastern Ill.	1925	945	317,681	323,956	5,680	7,884	62.7	501,725	247,072	121	35	22.2	25
	1924	945	283,385	289,603	4,703	6,713	63.6	419,854	209,863	122	30	19.9	30
Cleve., Cin., Chic. & St. L.	1925	2,374	802,174	854,082	30,152	23,199	59.3	1,556,825	731,149	329	83	20.2	...
	1924	2,376	796,157	856,612	17,779	22,163	60.1	1,476,576	700,712	351	88	20.0	21
Elgin, Joliet & Eastern	1925	460	134,767	143,909	6,936	3,695	62.0	288,202	150,979	80	13	13.6	...
	1924	460	127,271	141,697	8,080	3,521	63.6	272,266	143,873	77	20	20.4	3
Long Island	1925	393	44,181	48,368	12,311	487	55.5	31,315	11,205	42	7	14.0	...
	1924	393	44,569	49,757	10,905	557	58.9	34,246	13,265	42	13	24.1	4
Pennsylvania System	1925	10,887	4,943,533	5,407,848	431,528	131,032	61.7	8,863,619	4,173,876	2,684	645	19.4	127
	1924	10,953	4,576,557	4,982,807	369,177	117,492	62.1	7,932,657	3,751,860	2,637	871	24.8	70
Reading	1925	1,132	673,847	740,887	75,383	16,520	58.9	1,171,190	593,982	379	86	18.5	111
	1924	1,141	692,974	764,231	74,961	15,849	59.0	1,118,782	568,432	408	82	16.7	74
Pocahontas Region:													
Chesapeake & Ohio	1925	2,635	1,253,952	1,349,625	42,999	36,543	54.8	2,989,247	1,602,072	496	89	15.2	4
	1924	2,555	1,132,123	1,197,272	34,803	30,757	54.8	2,457,785	1,310,626	488	104	17.5	18
Norfolk & Western	1925	2,231	885,128	1,090,341	41,410	27,669	59.4	2,258,754	1,233,111	582	58	9.1	112
	1924	2,230	862,882	1,027,480	32,063	23,348	59.4	1,940,049	1,028,603	572	100	14.9	126
Southern Region:													
Atlantic Coast Line	1925	4,913	896,818	911,406	17,036	21,404	61.0	1,204,063	455,350	386	50	11.4	19
	1924	4,870	815,605	834,918	13,766	20,351	63.4	1,080,432	426,491	389	57	12.7	51
Central of Georgia	1925	1,907	350,476	353,366	6,353	7,141	66.5	403,192	174,359	145	22	13.1	10
	1924	1,907	323,644	324,922	5,032	6,675	70.0	359,668	159,059	135	14	9.5	11
I. C. (inc. Y. & M. V.)	1925	6,225	2,064,330	2,078,301	43,231	53,393	61.5	3,488,444	1,540,422	759	100	11.7	5
	1924	6,225	1,855,042	1,879,414	43,172	49,248	63.8	3,074,873	1,369,666	769	107	12.2	27
Louisville & Nashville	1925	5,021	1,963,385	2,095,732	71,631	35,779	59.1	2,471,253	1,188,551	614	92	13.0	...
	1924	5,027	1,765,391	1,920,843	72,849	32,328	61.3	2,161,516	1,055,370	587	110	15.7	5
Seaboard Air Line	1925	3,908	600,377	611,934	10,969	14,562	66.3	815,387	330,854	242	34	12.3	...
	1924	3,551	549,494	561,985	11,104	12,930	64.2	728,451	287,923	218	42	16.1	...
Southern Ry.	1925	6,857	1,630,004	1,675,463	34,736	35,461	61.9	2,057,505	819,992	817	130	13.7	37
	1924	6,840	1,475,101	1,507,532	34,659	32,215	63.3	1,816,617	716,957	857	112	11.6	17
Northwestern Region:													
Chic. & North Western	1925	8,469	1,493,433	1,546,557	29,746	32,974	61.8	1,961,191	763,984	743	200	21.2	106
	1924	8,463	1,477,906	1,518,316	26,377	30,477	62.7	1,742,533	693,007	767	273	26.2	110
Chic., Milw. & St. P.	1925	11,202	1,622,223	1,739,854	86,601	43,809	65.7	2,515,854	1,118,030	908	188	17.2	147
	1924	10,987	1,610,984	1,707,565	82,520	40,705	67.0	2,311,736	1,049,378	979	160	14.1	99
Chic., St. P., Minn. & Om.	1925	1,822	322,376	345,748	14,733	5,983	66.5	330,127	137,766	173	34	16.2	5
	1924	1,726	348,943	374,580	16,576	5,875	55.7	330,910	140,711	157	38	19.6	3
Great Northern	1925	8,222	785,901	816,924	44,096	24,765	72.8	1,373,773	669,492	619	140	18.4	147
	1924	8,251	853,745	881,186	43,977	23,041	70.7	1,295,336	624,598	634	130	17.0	115
M., St. P. & S. Ste. M.	1925	4,372	512,372	524,634	4,783	12,063	71.2	619,279	282,031	303	38	11.2	27
	1924	4,375	538,403	551,525	6,329	11,651	72.7	595,665	276,613	307	37	10.6	20
Northern Pacific	1925	6,510	771,088	808,737	44,628	23,725	73.8	1,301,860	613,680	530	138	20.7	117
	1924	6,447	857,276	895,807	47,798	23,152	72.2	1,287,612	612,836	539	156	22.4	81
Oreg.-Wash. R. R. & Nav.	1925	2,185	186,017	198,645	19,140	5,200	71.3	295,935	136,764	138	26	15.9	6
	1924	2,185	191,463	206,555	21,708	4,947	71.9	283,304	132,824	141	23	14.0	11
Central Western Region:													
Atch., Top. & S. Fe (incl. P. & S. F.)	1925	10,168	1,655,155	1,760,142	92,542	47,659	61.9	2,857,248	1,038,713	809	164	16.9	185
	1924	10,002	1,658,396	1,771,760	88,239	46,010	62.9	2,712,604	1,003,932	805	181	18.3	162
Chicago & Alton	1925	1,022	327,973	349,394	7,569	7,213	58.4	469,911	197,967	144	16	9.8	25
	1924	1,022	340,545	352,798	4,060	7,202	62.4	438,359	191,801	117	28	19.0	8
Chic., Burl. & Quincy	1925	9,343	1,613,643	1,676,592	62,402	43,634	61.3	2,717,528	1,264,969	819	190	18.8	41
	1924	9,328	1,656,747	1,743,882	79,016	41,375	62.1	2,546,775	1,195,015	815	206	20.2	20
Chic., Rock I. & Pacific	1925	7,564	1,342,406	1,384,886	14,968	30,956	62.1	1,784,418	701,913	529	158	23.0	51
	1924	7,578	1,355,541	1,385,352	11,970	29,157	64.5	1,610,997	660,056	571	183	24.3	54
Denver & R. G. Wn.	1925	2,548	257,027	306,590	57,591	6,474	67.1	379,512	177,603	226	49	17.9	14
	1924	2,567	246,019	302,597	55,564	5,518	67.3	326,513	156,090	248	58	18.8	42
Oregon Short Line	1925	2,443	342,415	357,684	22,959	8,669	64.1	546,191	241,355	199	24	10.7	42
	1924	2,392	330,421	351,969	24,368	8,013	67.3	492,389	229,766	207	26	11.3	50
Southern Pac. (Pac. Sys.)	1925	8,555	1,429,175	1,567,091	239,254	41,159	63.3	2,469,822	966,262	724	211	22.6	58
	1924	8,515	1,254,699	1,370,982	200,434	34,280	65.1	2,037,008	834,617	719	235	24.6	95
Union Pacific	1925	3,688	965,213	1,000,465	55,974	34,011	73.4	1,842,360	790,105	480	60	11.1	159
	1924	3,688	887,082	914,778	49,574	28,240	74.5	1,492,466	648,162	494	61	11.1	141
Southwestern Region:													
Gulf, Colo. & S. Fe	1925	1,897	295,935	308,866	8,195	8,862	62.7	531,732	223,782	122	20	14.0	16
	1924	1,897	316,466	327,482	6,857	9,053	62.8	539,286	229,426	120	21	14.8	1
Mo.-Kans.-Tex.	1925	1,787	249,228	249,760	4,430	8,187	58.9	480,538	180,408	113	18	13.7	40
	1924	1,787	276,823	276,852	7,477	8,287	61.1	484,057	191,747	120	32	20.8	30
Mo.-Kans.-Tex. of Tex.	1925	1,389	203,409	217,380	3,406	5,457	58.0	314,543	114,687	122	22	14.9	46
	1924	1,389	259,289	268,038	10,179	6,395	59.7	374,955	144,008	105	24	18.8	17
Missouri Pacific	1925	7,278	1,375,491	1,407,521	40,932	35,753	62.9	2,136,441	919,704	534	78	12.7	7
	1924	7,277	1,388,785	1,421,202	49,615	33,295	66.6	1,948,670	893,312	532	99	15.6	...
St. Louis-San Francisco	1925	4,895	940,605	969,078	16,678	19,543	62.7	1,147,757	478,883	427	74	14.7	19
	1924	4,683	900,745	918,757	16,154	17,901	65.4	1,025,632	443,628	419	70	14.3	18
Southern Pacific Lines (in Tex. and La.)[1]	1925	4,435	737,212	739,349	5,626	16,294	65.2	916,375	369,430	265	66	19.8	26
	1924	4,401	711,398	715,455	7,884	14,915	63.5	862,231	351,129	251	73	22.5	8
Texas & Pacific	1925	1,953	334,300	334,300	1,505	8,286	61.9	480,008	181,122	152	26	14.5	2
	1924	1,953	329,807	329,807	2,782	7,520	63.5	432,262	164,658	156	42	21.2	9

[1]Includes Franklin & Abbeville, Galveston, Harrisburg & San Antonio, Houston & Shreveport, Houston & Texas Central, Houston East & West Texas, Iberia & Vermilion, Lake Charles & Northern, Louisiana Western, Morgan's La. & Tex. R. R. & S. S. Co., and Texas & New Orleans.

Compared with December, 1924, for Roads with Annual Operating Revenues Above $25,000,000

Region, road and year	Average number of freight cars on line daily: Home	Foreign	Total	Per cent unserviceable	Stored	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomotive miles per locomotive day
New England Region:													
Boston & Albany.....1925	2,217	5,172	7,389	3.0	195	1,015	376	19.0	384	30.2	7,043	210	70.2
1924	2,586	5,716	8,302	2.8	197	957	366	20.2	393	29.7	8,292	222	74.2
Boston & Maine.....1925	12,395	14,768	27,163	8.4	...	1,234	480	19.5	280	20.8	3,289	161	45.9
1924	13,202	15,768	28,970	9.6	...	1,204	483	20.7	277	19.6	3,419	163	46.1
N. Y., New H. & Hartf...1925	17,614	20,815	38,429	16.2	265	1,336	518	19.8	213	16.1	4,321	148	52.2
1924	18,558	19,201	37,759	21.5	471	1,295	535	21.1	224	15.4	4,382	156	47.7
Great Lakes Region:													
Delaware & Hudson.....1925	12,226	6,030	18,256	4.1	4,091	1,539	755	29.1	409	22.2	8,533	187	52.2
1924	8,816	5,800	14,616	6.7	...	1,641	823	32.6	686	33.2	11,298	194	63.9
Del., Lack. & Western....1925	15,008	10,269	25,277	4.0	127	1,668	690	23.2	478	31.0	12,178	183	63.8
1924	17,170	9,163	26,333	4.4	43	1,714	768	26.1	545	31.4	14,468	186	70.4
Erie (inc. Chic. & Erie)..1925	35,021	20,340	55,361	6.9	11,364	2,039	852	25.6	471	30.0	11,212	142	64.2
1924	37,319	20,065	57,384	6.2	13,512	1,992	878	26.6	449	26.3	11,093	151	47.1
Lehigh Valley 1925	20,545	10,487	31,032	7.0	4,750	1,723	717	24.3	404	26.4	9,334	160	44.2
1924	22,797	10,331	33,128	6.5	125	1,792	811	27.9	453	26.2	11,069	169	43.7
Michigan Central 1925	15,907	18,900	34,807	4.5	3,208	1,735	629	19.8	329	26.6	6,235	135	56.4
1924	14,663	15,646	30,309	5.6	1,492	1,625	601	20.5	370	29.4	6,140	142	54.3
New York Central.....1925	62,509	74,646	137,155	3.9	15,578	2,113	925	27.7	493	29.4	10,446	139	61.9
1924	69,880	67,980	137,860	4.1	19,593	2,034	891	27.1	452	27.1	9,664	147	53.6
New York, Chic. & St. L..1925	11,561	10,491	22,052	5.0	2,623	1,621	652	22.6	688	47.0	9,104	133	80.0
1924	10,945	11,419	22,364	4.9	3,020	1,518	606	22.2	618	43.1	8,293	145	74.9
Pere Marquette 1925	9,255	11,053	20,308	3.6	902	1,350	580	25.3	418	27.2	3,865	135	70.7
1924	9,844	10,304	20,148	6.5	1,551	1,336	624	28.0	393	22.4	3,602	145	61.0
Pitts. & Lake Erie.....1925	11,160	9,035	20,195	7.1	1,016	2,396	1,339	42.0	291	11.3	25,357	88	54.4
1924	13,203	8,044	21,247	5.0	1,648	2,606	1,520	45.5	301	10.7	27,631	79	50.5
Wabash 1925	13,224	12,876	26,100	2.4	350	1,595	652	23.3	611	40.2	6,390	150	68.5
1924	13,000	11,378	24,378	2.6	715	1,588	671	23.4	598	37.1	5,846	164	67.6
Central Eastern Region:													
Baltimore & Ohio.....1925	62,452	41,376	103,828	7.0	2,305	1,809	872	32.1	556	28.4	11,101	186	68.8
1924	69,423	34,340	103,763	11.5	3,936	1,655	785	30.5	460	24.6	9,161	183	59.5
Central of New Jersey.....1925	16,560	12,438	28,998	2.1	3,312	1,424	654	28.2	188	10.9	7,910	203	37.8
1924	18,140	10,335	28,475	3.3	3,216	1,521	729	31.6	231	12.6	9,506	202	40.1
Chicago & Eastern Ill.....1925	12,406	5,159	17,565	20.6	1,110	1,579	778	31.3	452	23.0	8,433	168	68.2
1924	14,477	4,481	18,958	22.6	892	1,482	741	31.3	356	17.9	7,163	196	62.5
Cleve., Cin., Chic. & St. L..1925	13,421	22,753	36,174	4.2	4,676	1,941	911	31.5	652	34.9	9,934	147	69.3
1924	14,121	20,533	34,654	4.8	2,601	1,855	880	31.6	652	34.3	9,512	148	64.2
Elgin, Joliet & Eastern....1925	9,370	7,172	16,542	5.8	151	2,139	1,120	40.9	294	11.6	10,592	158	52.9
1924	9,732	7,100	16,832	8.5	941	2,139	1,130	40.9	276	10.6	10,094	162	49.8
Long Island 1925	1,934	5,190	7,124	1.1	90	709	254	23.0	51	4.0	919	306	40.3
1924	1,854	4,420	6,274	0.9	163	768	298	23.8	68	4.9	1,088	336	35.7
Pennsylvania System 1925	201,419	93,688	295,107	9.9	18,609	1,793	844	31.9	456	23.2	12,367	154	56.6
1924	206,316	89,915	296,231	9.8	37,849	1,733	820	31.9	409	20.6	11,050	152	49.2
Reading 1925	18,653	18,669	37,322	2.4	1,817	1,738	881	36.0	513	24.2	16,933	166	56.7
1924	24,101	15,832	39,933	2.0	4,057	1,614	820	35.9	459	21.7	16,076	191	55.3
Pocahontas Region:													
Chesapeake & Ohio.....1925	29,031	15,632	44,663	2.8	2,039	2,384	1,278	43.8	1,156	48.1	19,609	120	76.8
1924	27,745	12,670	40,415	3.7	1,406	2,171	1,158	42.6	1,045	44.7	16,547	134	67.2
Norfolk & Western.....1925	28,387	11,009	39,396	1.2	1,478	2,552	1,393	44.6	1,009	38.0	17,827	168	57.1
1924	28,659	9,119	37,778	3.1	1,442	2,248	1,192	43.1	878	34.2	14,879	183	50.8
Southern Region:													
Atlantic Coast Line.....1925	21,883	25,051	46,934	3.1	...	1,343	508	21.3	310	23.9	2,990	145	68.7
1924	20,353	15,204	35,557	5.2	...	1,325	523	21.0	381	28.8	2,825	129	61.4
Central of Georgia.....1925	4,087	8,952	13,039	3.9	...	1,150	498	24.4	431	26.5	2,950	177	69.5
1924	3,989	5,350	9,339	6.1	...	1,111	492	23.8	549	32.9	2,691	172	71.4
I. C. (inc. Y. & M. V.)...1925	40,176	28,396	68,572	2.8	...	1,690	746	28.9	724	40.7	7,983	149	79.6
1924	41,120	22,697	63,817	3.8	...	1,658	738	27.8	691	39.0	7,097	155	70.8
Louisville & Nashville.....1925	39,706	26,730	66,436	9.3	94	1,259	605	33.2	575	29.3	7,635	185	99.1
1924	41,726	22,440	64,166	9.9	101	1,224	598	32.6	529	26.5	6,772	184	92.4
Seaboard Air Line.....1925	11,677	16,102	27,779	1.2	...	1,358	551	22.7	384	25.4	2,731	159	72.9
1924	10,691	10,513	21,204	4.4	100	1,326	524	22.3	438	30.6	2,616	156	71.2
Southern Ry. 1925	41,222	26,040	67,262	3.4	...	1,262	503	23.1	393	27.4	3,858	183	58.2
1924	36,709	24,270	60,979	5.1	...	1,232	486	22.3	379	26.9	3,381	188	51.3
Northwestern Region:													
Chic. & North Western.....1925	47,947	28,290	76,237	8.2	13,950	1,313	512	23.2	323	22.5	2,910	152	53.9
1924	49,132	28,556	77,688	10.0	7,740	1,179	469	22.7	287	20.1	2,642	185	47.9
Chic., Milw. & St. P.....1925	54,854	23,203	78,057	5.4	...	1,551	689	25.5	461	27.5	3,220	165	53.7
1924	54,146	24,379	78,525	8.5	...	1,435	651	25.8	430	24.9	3,081	188	50.7
Chic., St. P., Minn. & Om..1925	2,810	8,186	10,996	11.9	2,394	1,024	427	23.0	404	26.3	2,439	176	56.3
1924	3,555	10,165	13,720	10.5	715	948	403	24.0	331	21.0	2,629	194	64.7
Great Northern 1925	43,782	11,741	55,523	7.0	...	1,748	852	27.0	383	19.4	2,627	151	36.6
1924	47,064	14,853	61,917	6.8	...	1,517	732	27.1	321	16.8	2,442	180	39.1
M., St. P. & S. Ste. M...1925	19,211	6,062	25,273	4.2	435	1,209	550	23.4	359	21.5	2,081	130	50.1
1924	20,942	6,559	27,501	4.5	918	1,106	514	23.7	324	18.7	2,040	149	52.5
Northern Pacific 1925	34,661	9,749	44,410	5.6	...	1,688	796	25.9	443	23.2	3,041	155	41.2
1924	35,167	12,503	47,670	6.2	...	1,502	715	26.5	413	21.6	3,066	156	43.8
Oreg.-Wash. R. R. & Nav..1925	6,434	4,181	10,615	4.6	...	1,591	735	26.3	414	22.0	2,019	192	42.7
1924	5,937	3,596	9,533	3.1	...	1,480	694	26.8	448	23.2	1,961	224	45.0
Central Western Region:													
Atch., Top. & S. Fe (incl. P. & S. F.).....1925	52,472	16,260	68,732	6.3	6,372	1,726	628	21.8	485	36.0	3,295	135	61.5
1924	51,697	18,076	69,773	7.1	8,522	1,636	605	21.8	464	33.8	3,238	145	60.9
Chicago & Alton.....1925	8,944	5,237	14,181	5.8	1,000	1,433	604	27.4	449	28.0	6,249	181	72.3
1924	9,529	5,366	14,895	4.8	...	1,287	563	26.6	414	24.9	6,054	196	79.4
Chic., Burl. & Quincy.....1925	48,125	18,582	66,707	6.4	...	1,684	784	29.0	610	34.3	4,367	164	55.6
1924	50,353	20,196	70,549	7.7	...	1,537	721	28.9	545	30.4	4,133	180	57.6
Chic., Rock I. & Pacific....1925	32,928	21,160	54,088	10.5	6,122	1,329	523	22.7	416	29.5	2,994	175	65.7
1924	33,092	23,947	57,039	10.4	7,086	1,188	487	22.6	370	25.3	2,810	191	59.8
Denver & R. G. Wn.....1925	10,960	5,312	16,272	4.3	4,049	1,477	691	27.4	351	19.0	2,248	221	42.8
1924	12,516	4,188	16,704	5.2	3,474	1,327	634	28.3	301	15.7	1,962	248	37.8
Oregon Short Line.....1925	9,424	5,421	14,845	3.1	...	1,595	705	27.8	523	29.2	3,187	146	55.0
1924	6,649	5,467	12,116	5.1	...	1,490	695	28.7	610	31.5	3,099	160	52.1
Southern Pac. (Pac. Sys.).1925	31,443	27,747	59,190	6.7	8,221	1,728	676	23.5	525	35.3	3,644	141	62.3
1924	28,950	24,775	53,725	6.5	5,050	1,624	665	24.3	500	31.5	3,162	152	53.2
Union Pacific 1925	17,004	10,796	27,800	12.3	...	1,909	819	23.2	914	53.4	6,912	132	63.1
1924	19,312	8,585	27,897	12.2	...	1,682	731	23.0	746	43.5	5,670	159	56.0
Southwestern Region:													
Gulf, Colo. & S. Fe.....1925	9,892	4,776	14,668	3.2	521	1,797	756	25.3	490	31.0	3,805	117	72.1
1924	8,872	6,550	15,422	3.3	886	1,704	725	25.3	480	30.1	3,901	131	76.8
Mo.-Kans.-Tex. 1925	7,923	4,584	12,507	4.5	1,492	1,928	724	22.0	459	35.4	3,256	111	62.7
1924	7,437	7,705	15,142	4.5	...	1,749	693	23.1	405	28.5	3,461	127	60.5
Mo.-Kans.-Tex. of Tex....1925	317	10,491	10,808	8.0	1,007	1,546	564	21.0	325	27.3	2,663	130	49.5
1924	332	14,570	14,902	8.6	...	1,446	555	22.5	302	22.6	3,344	142	69.2
Missouri Pacific 1925	26,146	22,361	48,507	6.7	57	1,553	669	25.7	610	37.7	4,076	149	76.3
1924	25,908	25,269	51,177	7.6	...	1,403	643	26.8	563	31.5	3,960	163	75.2
St. Louis-San Francisco....1925	18,178	14,886	33,064	4.8	...	1,220	509	24.5	467	30.3	3,156	181	63.5
1924	18,635	14,154	32,789	5.0	12	1,139	493	24.8	436	26.8	3,056	190	61.7
Southern Pacific Lines (in Tex. and La.)[1].....1925	10,711	17,598	28,309	7.5	2,763	1,243	501	22.7	419	28.4	2,687	127	72.7
1924	10,262	19,470	29,732	6.6	2,353	1,212	494	23.5	380	25.4	2,573	140	72.1
Texas & Pacific.....1925	6,195	8,257	14,452	3.4	...	1,436	542	21.9	374	28.7	2,991	131	60.9
1924	6,080	7,992	14,072	8.7	...	1,311	499	21.9	335	25.4	2,720	160	54.3

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Lehigh Valley Shop Crafts Association Dinner

The Association of Maintenance of Equipment Employees and the Shop Crafts Athletic Association at the system shops of the Lehigh Valley at Sayre, Pa., held their first annual dinner in the Assembly Hall at the shops on Thursday, February 18. There were over 1,100 shop crafts employees and their ladies present. Music was furnished by the Sayre System Shop Band. Harry Farr, piecework inspector, officiated as toastmaster. Two of the younger men who attended the Younger Railroad Men's Conference at Pittsburgh last November, told of what it had meant to them and gave encouraging messages to the apprentices and younger men who attended the dinner. The young men who spoke were Leo Downs, machinist apprentice, and Donald Green, electrician apprentice. Alexander C. Birney, chairman of the blacksmiths, commented on the remarkable spirit of co-operation which existed between the shop crafts employees and the management on the Lehigh Valley. Roy V. Wright, managing editor of the *Railway Age*, discussed some of the fundamental principles upon which co-operation and teamwork are based.

Fatal Accidents on the Highways and on the Railroads

The number of persons killed on the highways of the United States during the twelve months of 1925 is reported by the Department of Commerce, at Washington, on the basis of estimates received from many cities, as 24,000.

The total number of persons reported killed on the railroads of the country in the same time (December estimated) was 6,705.

Included in the total of casualties on the railroads are about 2,000 persons killed at grade crossings, all, or nearly all, without fault on the part of the railroad. Most of these 2,000 fatalities are, no doubt, included in the government's total of 24,000.

The statement from Washington says that while the annual record of persons killed in automobile accidents is still growing, year by year, the *rate* of increase has declined much within the last two years. Automobiles are involved in at least 85 per cent of the fatalities occurring on the highways. The decline in the rate of increase is believed to offer "some hope for an actual downward trend in the future."

Competition of Divisions Brings Operating Results

The Des Moines division of the Chicago, Milwaukee & St. Paul missed a 100 per cent operating record during December, because one passenger train lost time on one run. The division competes in a plan inaugurated several years ago under which divisions strive for the best record each month in various operations. These operations include perfect passenger train performance for which 15 points are allowed; perfect freight train performance, 15 points; increased mileage per freight car per day, 10 points; no train accidents, 10 points; and improvement in train loading, overtime, cost of switching, cost of handling coal, etc., 50 points. During 1925 among nine class A divisions the Kansas City division held first place, and the Aberdeen and LaCrosse divisions tied for second place, both having held the highest percentage on three different months. The highest point in a single month was held by the Hastings & Dakota division in May with 99.7 per cent.

Among seven class B divisions, or those having lesser traffic density, the Madison and Superior divisions tied, each having the highest place in four months, the Superior division, having a high score of 97.6 as compared with the Madison division of 97.3. The Dubuque division held first place in October and December with a high mark of 97.4. Of the four class C divisions the Wisconsin Valley held first place nine months out of the twelve, but the Des Moines division had a score of 99.9 in December.

The Pennsylvania Hero Medals

General W. W. Atterbury, president of the Pennsylvania Railroad, on February 10, at Philadelphia, awarded 24 "heroic service medals" to 24 employees of the company whose heroic deeds have been reported to the board of directors. In the presence of the directors and a number of officers, a reception was given to those of the recipients who could be present and each individual was introduced to General Atterbury. Two of the medals were awarded in honor of two men (Messrs. John P. Schlessman and James P. Smith) who lost their lives in performing their heroic acts.

The medal, which is given under a resolution adopted by the directors two years ago, is of bronze 2¾ in. in diameter.

The names of the other 22 men are:

Marvin L. Atkinson, agent; G. R. Brobeck, piece-work inspector (not now in service); Lester C. Bush, deckhand on tug; A. P. Connor, agent; H. W. Cribbs, patrolman; Russell H. Dearr, ticket clerk; C. DeMooy, headlineman on tug; Dana Finley, fireman on tug; Austin Joseph Grealis, gateman; H. J. Herbert, captain of tug; Herman Johnson, car inspector; James F. Kelty, clerk; Grover C. McLaughlin, freight conductor; J. F. O'Leary, patrolman; Guiseppe Pavese, crossing watchman; Fred Price, freight brakeman; D. A. Shelley, car inspector; T. T. Simmons, freight brakeman (now in U. S. Navy); G. W. Steward, telegraph operator; A. R. Swift, agent; Joseph Webb, crossing watchman; Victor M. Ziegler, signalman.

American Railway Engineering Association

The program for the American Railway Engineering Association convention, which will be held at the Congress hotel, Chicago, on March 9, 10 and 11, giving the order of presentation of the reports of the various committees, is as follows:

FIRST DAY—TUESDAY, MARCH 9

President's Address.
Reports of Secretary and Treasurer.
Reports of Standing and Special Committees on:
Rules and Organization,
Ballast,
Iron and Steel Structures,
Electricity,
Economics of Railway Location,
Water Service,
Records and Accounts,
Shops and Locomotive Terminals.

SECOND DAY—WEDNESDAY, MARCH 10

Signals and Interlocking,
Signs, Fences and Crossings,
Yards and Terminals,
Uniform General Contract Forms,
Masonry,
Stresses in Railroad Track,
Rail,
Track,
Co-operative Relations with Universities.
Annual Dinner—6:30 p. m.

THIRD DAY—THURSDAY, MARCH 11

Ties,
Economics of Railway Operation,
Roadway,
Wooden Bridges and Trestles,
Wood Preservation,
Clearances—Progress report,
Economics of Railway Labor,
Buildings,
New Business,
Election and Installation of Officers,
Adjournment.

I. C. C. Reorganization Bill Reported

The Senate committee on interstate commerce on February 19 voted a favorable report on the bill introduced by Senator Smith of South Carolina, S. 2808, providing for regional appointments to the Interstate Commerce Commission, with amendments increasing the number of commissioners to 13, instead of 12 as proposed in the original bill, providing for seven instead of six geographical divisions, and that not more than one commissioner shall be appointed from any state. While the original bill provided for the appointment of two commissioners from each geographical division, as vacancies occur, the amended bill gives the Lake group three members and the New England and Pacific groups each one, while the others are given two. The Pacific group was created by omitting Washington, Oregon and California from the Mountain group, leaving Montana, Wyoming, Colorado, Idaho, Nevada, Arizona and Utah in the Mountain group and assigning it two commissioners. Such a grouping reflects the work of Senators, of which there are two to each state, regardless of the population of the state, and it is regarded as certain that it would meet with opposition in the House where the states are represented according to population. The Mountain and Pacific groups together would have three commissioners for 8,500,000 population; as against a population of 28,000,000 for the Lake group, whereas the Middle Atlantic group with 30,000,000 population would have

but two and the South Atlantic group would have two for 14,000,000 population and the Gulf group two for 17,000,000.

Senator Cummins has introduced in the Senate a resolution, S. Res. 152, rescinding Senate Resolution 438, passed February 26, 1923, at the instance of the late Senator La Follette, which required the Interstate Commerce Commission to compile a monthly report to Congress, or to the President when Congress is not in session, regarding the condition of railroad equipment. The resolution was adopted after the railroad shop strike and the commission has several times asked that the report be omitted, as it costs about $5,000 a year and contains only information which is reported in other forms.

Representative Wood has introduced in the House a bill, H. R. 9598, to omit from section 25 of the interstate commerce act the provision inserted by the transportation act requiring water carriers to file with the Interstate Commerce Commission and the commission to publish schedules of sailing dates, routes, etc. The commission has recommended that this be omitted on the ground that it is a duplication of work done by the Shipping Board and costs about $9,000 a year.

Baltimore & Ohio Glee Club Sings

The members of the New York Railroad Club were entertained at the monthly meeting on Friday, February 19, by the Baltimore & Ohio Glee Club. The program, which was given in the auditorium of the Engineering Societies Building, was received with great enthusiasm. It included the following numbers:

Hymn Before Action.....Ralph L. Baldwin
Chantey (Eight Bells) ..... Bartholomew
Hundred Pipers .....Whiting
Sylvia .....Speaks-Gaines
Bedouin Song .....Arthur Foote
Swing Low, Sweet Chariot.....Reddick
Chorus of Camel Drivers.....Franck-Davison
Sweet and Low.....Barnby-Dressler
Bells of St. Mary's.....Adams-Lucas
The Clock .....Mark Andrews
Autumn Song .....Gericke
Finale from the Gondoliers.....Sullivan

The technical part of the meeting was somewhat unusual. A lively open forum discussion was held on constructive suggestions for improving the program and making the work of the club more effective. It was opened by the chairman of the Subjects Committee, Roy V. Wright, managing editor of the *Railway Age*.

Status of Valuation Work

The Presidents' Conference Committee on Federal Valuation of the Railroads has issued a statement, dated January 15, reviewing the developments in the federal valuation work since its last statement of August 5, 1925, which was abstracted in the *Railway Age* of August 22, 1925, page 373. In this interval 75 final valuations have been handed down by the commission, making a total of 133 final reports issued up to December 31, 1925. Of this total 57 reports covered properties of carriers which did not protest against the tentative valuation. There are about 200 cases in addition to those previously reported in which the tentative valuations have also become final by reason of the failure of the carriers to file protests within the statutory period of 30 days after the tentative valuation was served. The total final value of the carrier property of these non-protesting carriers is less than five per cent of the total value of all the carriers thus far either finally or tentatively determined by the commission. They include about 5,500 miles of road, or about two per cent of the total mileage to be covered by the valuations.

Since the August statement, the commission has served 117 tentative valuations, making a total of 682 tentative valuations served up to December 31, 1925. Of those served since last August, seven were Class I carriers, as follows:

Alabama & Vicksburg
Atchison, Topeka & Santa Fe
Kanawha & Michigan
Midland Valley
Panhandle & Santa Fe
Port Reading
San Antonio & Aransas Pass

All Class I carriers have received either a tentative valuation or the preliminary engineering, land and accounting reports, except the Western Maryland, which has not yet received its engineering report.

During the year ended June 30, 1925, $6,898,925 was expended in connection with the valuation work by Class I carriers reporting to the Presidents' Conference Committee, making a total amount reported expended by these carriers for the twelve years ending June 30, 1925 (with a few of the smaller carriers not reporting), of $83,928,395. The expenditures of the Bureau of Valuation for the year ending June 30, 1925, were $1,064,955, making a total expenditure of the Bureau from the beginning of valuation work to June 30, 1925, of $26,662,197.

Tilt in Canadian Commons on Rouyn Railway

Sir Henry Drayton, a prominent Conservative member of the Canadian Parliament and former chairman of the Dominion Railway Board, made a lengthy speech last week in criticism of the agreement between the Canadian National, the Quebec government and the Noranda Mine Company for the construction of the Rouyn Mines Railway in northwestern Quebec. That branch is to run from O'Brien, on the National Transcontinental, south 45 miles to the goldfields. Sir Henry scolded the federal government for having countenanced such a deal, and declared that it really committed the government to financial obligations, it countenanced the forming of a "dummy" company in Montreal and he did not like the arrangements made with a New York financial firm for raising money for the project.

Replying for the government and defending the deal James A. Robb, Minister of Finance, following Drayton in the debate, said:

"In 1924, Mr. Timmins of the Hollinger Mines approached the President of the Canadian National Railways urging him to build a line into that section of the country. A survey was made of it and the railway directors and the president were not satisfied that the building of a road in there would be a profitable venture.

"Shortly afterwards another discovery was made of the Noranda mines and again they were approached to build a road. Representations were such that engineers were sent there to make a very careful survey of the possibilities of that section of country. It was discovered that there were very rich mineral deposits and there was a rush not only of miners, but of railways to get into that district. It is well known that an Ontario railway that has been made very profitable to the province at large by going into the mining country was anxious to build a line, and other railway companies were similarly anxious. The Canadian National Railways made a survey, and on reports made to them it was indicated that it was questionable whether, even with the prospects of building a 500-ton smelter, the road would pay at first. The government of Quebec was approached. The government of Quebec were asked for a railway land grant and they said: 'We will not give you a railway land grant, but we will give you a grant of some $50,000 a year.' I will come to that a little later on. Early in the summer of 1925 a location survey was made of this road, because of additional proof coming out of rich findings in that part of the country."

Mr. Robb then gave the names of the directors of the company and declared that, instead of it being a "dummy" company, it was composed of reputable business men of Montreal and New York.

"Now, Sir, as said a moment ago the funds for the construction of this railway are not being provided by the government of Canada, but by a banking institution in New York. The directors I have named represent that institution. Before undertaking to operate the road the chairman and board of directors of the Canadian National Railways secured an agreement from the government of the Province of Quebec that it would give a bonus of $50,000 a year for five years, and from the Noranda mines that they would give an additional bonus of $20,000 a year for five years, or a total bonus of $70,000 a year for that period. The traffic experts have carefully surveyed and investigated the local conditions, and they estimate that the road will carry itself with this subsidy, and that within five years at most it will return a profit to the company."

CLYDE H. JONES, a member of the Public Service Commission of Indiana, has been appointed chairman of the committee on motor transportation and legislation of the National Association of Railroad and Utilities Commissioners.

Traffic News

In a complaint filed with the Interstate Commerce Commission, J. P. Harden of Chicago charges the Pullman Company with unjust discrimination in refusing to sell him a Pullman ticket from Atlanta to Chicago, on the ground that he is a negro. He asks reparation in the sum of $25,000.

The Board of Trade and Transportation, New York City, proposes to offer prizes for the best suggestions for the solution of the freight terminal problem of New York City; first prize, $250; second prize, $150. Competition will be limited to shippers, carriers and their employees.

The Senate committee on interstate commerce has set March 22 as the date for beginning hearings on the bill for the regulation of motor vehicle highway transportation drafted by the National Association of Railway and Public Utilities Commissioners and introduced in the Senate by Senator Cummins.

Complaints regarding rates charged by the Canadian National Railways on carloads of woodpulp from Bathurst, N. B., to Toronto were heard by the Dominion Railway Board last week at Ottawa. The complaints were made on an application of the Canadian Shippers' Traffic Bureau at Toronto for an order of the board disallowing the rates. Decision was reserved by the board.

The Transportation Club of Louisville, at its annual meeting chose the following officers for the ensuing year: President, W. H. Cloud, traffic manager of the Louisville Tin & Stove Co.; vice-president, H. T. Lively, general claim agent of the Louisville & Nashville; secretary-treasurer, W. T. Vandenburgh, commercial agent of the Seaboard Air Line; and directors, E. J. Merkel, commercial agent of the Norfolk & Western, W. A. Gates, traffic manager of the W. P. Brown & Sons Lumber Co., J. K. Shannon, superintendent of the American Railway Express Company, and J. S. Thompson, district manager of the Southern Hardwood Traffic Association.

Minnesota Court Upholds I. C. C. Ruling

The authority of the Interstate Commerce Commission over freight rates in Minnesota was sustained in the Hennepin county court on February 18. The contention of the Northern Pacific that orders of the Interstate Commerce Commission take precedence over the ruling of the Minnesota Railroad and Warehouse Commission in the application of intrastate freight rates was upheld by Judge Mathias Baldwin and the court directed the jury to return a verdict of not guilty. The Minnesota Railroad and Warehouse Commission will endeavor to get the case back into court in a civil suit so that it can be appealed if necessary. It is planned to have a shipper sue the railroad to recover damages claimed due to the discrimination.

Sixteen Dollars Per Capita

Frank H. Alfred, president of the Pere Marquette, in his latest bulletin, calls the attention of the public to the fact that in the past year the railroads of the country have performed 5.47 per cent more work (freight service) than in 1924 at an increase of only 0.4 per cent in operating expenses. Continuing, he says:

Every man, woman and child in the United States is receiving greater direct benefits from the American railroads than at any time before. Mr. Julius H. Parmelee, director of Bureau of Railway Economics, estimates that compared with the freight rates in effect in 1920, the freight traffic actually handled in 1925, at the lower rates then prevailing, represented a saving to the shippers of nearly $800,000,000.

It is recalled that the cost to the country of freight congestion and car shortages, in 1920, amounted to a billion dollars. Unquestionably the annual saving on these counts in recent years, as the capacity of the roads has been brought up under large capital expenditures more nearly to current requirements, has run into very large aggregates.

Now, where have these immense benefits gone? They have gone to the railroads to but a fraction of one per cent, the balance to the 113 million people of the United States; into the lower prices for commodities, into higher wage scales, into the profits for enterprise, and into the higher standard of living.

So, this $1,800,000,000 of an improvement over 1920, means that each one of the country's 113,000,000 people has been directly benefited by American railroads to the extent of approximately $16 per capita in 1925.

Canadian Commission Hears Grain Rates Argument

For three days last week and on Tuesday of this week the Dominion Railway Board at Ottawa heard argument on the application of the provinces of Saskatchewan, Alberta and British Columbia for the establishment of a mileage scale of rates on grain and flour eastbound from the prairie provinces to Fort William and Port Arthur. Involved in this application was the contention that the order of the board last summer that Crow's Nest Pass rates on grain and flour be applied to the eastward movement to the head of the Great Lakes, had not been fully observed by the railways, and that a mileage scale of rates would be an amply remedial measure for the grain and flour shippers. Judgment was reserved by the board.

Immediately following that hearing on Tuesday the provinces of Alberta and British Columbia applied to the board and argued on their application for fuller enforcement of the Pacific rates order granting Crow's Nest Pass rates on grain and flour westbound from the prairie provinces to the Pacific Coast for export.

At the opening of the hearing on the application for a mileage scale of rates eastbound preliminary objection to the application being heard was made by the two railway representatives, both E. P. Flintoft for the C. P. R. and Alistair Fraser for the C. N. R. contending that the charge that the Crow's Nest rates had not been applied eastbound involved the question of discrimination and that this could only be dealt with on the general rates inquiry to be held later in the year. Two members of the board agreed with this position—Commissioners Boyce and Lawrence—while the other four held for its hearing at this time—Chief Commissioner McKeown, Deputy Chief Commissioner Vien, Assistant Chief Commissioner McLean and Commissioner Oliver.

Florida Embargo Modified

The situation in Florida is clearing up. Congestion of carload traffic north of Jacksonville is ended and a substantial modification of the state-wide embargo on all freight shipments was announced on February 18 by the Car Service Division of the American Railway Association.

Beginning with February 22, all commodities were placed on the free list except those enumerated below. For these permits must be obtained by receivers of freight, under the plan approved some time ago by the Florida Division of the Southeast Shippers' Regional Advisory Board. Those commodities against which the embargo will continue to apply for an indefinite period are:

Automobiles and Trucks;
Brick, all kinds;
Cement, including all kinds, cement blocks and shapes;
Iron plates and sheets, including corrugated and galvanized iron and metal laths;
Lumber and Logs, all kinds except crate material and car strips.
Lime and Plaster;
Plaster Board and Building Paper;
Poles and Piling;
Pipe, all kinds, including cement, iron and tile pipe;
Roofing materials including roofing paper, shingles, and roofing tile;
Structural steel and steel shapes;
Sand, stone, gravel, slag, clay and screenings, including curbing, stone blocks and marble tile, all kinds, including roofing, building and floor tile and flue linings;
Household goods as specified in consolidated classification.
(For the movement of household goods, permits will be issued where consignee has a house into which to put the consignment promptly on arrival.)

It is well known that many essential commodities which ordinarily moved into Florida in one and two carload quantities and against which the state-wide embargo has hitherto applied were split up by shippers and forwarded in less than carlot quantities into the state, thereby materially increasing the congestion of this class of traffic. Under the modification of the embargo, such commodities can be shipped in carlot quantities, which will materially improve the l. c. l. situation.

For commodities against which the embargo will continue to apply, receivers in Florida will have to file a statement as to their monthly requirements and permits will be issued by the carriers on a percentage basis, equally to everyone, and predicated upon the requirements filed by each receiver. The Florida East Coast, however, will exempt automobiles and trucks shown in the above embargoed list on and after February 22.

Commission and Court News

Interstate Commerce Commission

The commission has found justified increased estimated weights on lettuce, in crates, moving transcontinentally eastbound from points west of Albuquerque, Belen and Deming, N. M., El Paso, Tex., and Salt Lake City, Utah, also certain points in northern California, in tariffs filed to become effective on October 15, 1925, which were suspended until March 14.

Personnel of Commissions

New Railways Minister for Canada

George P. Graham has resigned as Minister of Railways and Canals in the Canadian Government and Charles Dunning, Premier of Saskatchewan and Minister of Railways for that province, has accepted the federal portfolio in succession to Mr. Graham. Francis Darke, Liberal member of the House for Regina, capital of Saskatchewan, has resigned his seat in favor of Mr. Dunning and the contest for the latter's election to Parliament will be held on March 23.

Mr. Dunning was born in England in 1885, and has been in public life in Canada ten years, entering the Saskatchewan legislature in 1916 as provincial treasurer. In 1917 he became Minister of Railways for the province, in the following year Minister of Telephones and in 1919 was appointed Minister of Agriculture. In 1922 Mr. Dunning became Premier. Mr. Graham was eulogized in Parliament by Conservative and Liberals alike. His resignation was the outcome of his defeat in the last elections.

Senate Committee Opposes Confirmation of Woodlock Appointment

The Senate committee on interstate commerce at a meeting on February 19 voted 7 to 6 against recommending the confirmation of the President's nomination of Thomas F. Woodlock for appointment as a member of the Interstate Commerce Commission. Following the hearings, at which Mr. Woodlock was questioned at length regarding the opinions expressed in his writings, principally by Senator Wheeler of Montana, an unofficial poll of the committee indicated a vote of 9 to 8 in favor of confirmation, but no actual vote was taken for over three weeks, for the reason, it was stated, that while the Senate was busy with the revenue bill, there would be no chance for consideration of a nomination that would lead to debate. The difference between the poll and the actual vote was caused by the fact that Senator Couzens, who had been counted in favor of confirmation, finally voted against it.

Those who voted against confirmation were: Couzens, Gooding and Howell, Republicans; and Pittman, Wheeler, Mayfield and Smith, Democrats. Those who voted for confirmation were: Watson, Cummins, Fernald, Fess and Sackett, Republicans, and Underwood, Democrat. Of the four members of the committee who were absent, it is understood that Dill, Democrat, and Pine, Republican, would have voted against confirmation, and that Bruce, Democrat, and Goff, Republican, would have voted for it.

President Coolidge first submitted the nomination of Mr. Woodlock to the Senate on January 26, 1925, to succeed Mark W. Potter, stating at the time that the commission needed a financial man. No action being taken he again submitted the nomination to the extra session of the Senate. As no action was taken he then gave Mr. Woodlock a recess appointment, and the formal nomination was again sent to the Senate on December 21.

Court News

Liability Where Loss by Fire Originated With Shipper

The Maine Supreme Judicial Court holds that while a railroad is not required to provide equipment that would be adequate to protect shipments in a car heated by a stove temporarily set up therein, it would be bound to exercise reasonable care and diligence in the use of such equipment though the hazard was of the shipper's voluntary creation, it being with the railroad's consent. But a verdict against the railroad for the full amount of the loss was held error, and recovery, if any, should be limited to the loss sustained after discovery of the fire.—John Groves Co. v. B. & A. (Me.) 129 Atl. 823.

Absence of Flagman Does Not Relieve Traveler from Care

The Minnesota Supreme Court holds that while the absence of a flagman from a crossing where usually one is stationed, to the traveler's knowledge, is a fact favorable to the traveler in determining his contributory negligence, it does not relieve him from care for his safety, and such an automobilist injured on a foggy day in the flagman's absence was held guilty of contributory negligence in failing to look and see the approaching train.—Bluelow v. R. I. (Minn.) 204 N. W. 571.

Fall on Pile of Ashes—Company Not Negligent

A yard engineman sued the company for a sprained ankle caused by stepping on a piece of coal concealed in a pile of ashes and cinders. He was carrying a lantern, but testified he did not see the pile. It was shown that the company took the usual precautions to keep its yard clear, but that in yard movements lumps of coal unavoidably fall from freshly loaded tenders. The Circuit Court of Appeals, Eighth Circuit, holds that on the facts the accident could not have been foreseen by a reasonably prudent person, and that a directed verdict for the railroad company should have been granted.—C. & N. W. v. Payne, 4 Fed. (2d) 332.

Strike Does Not Exempt Consignee from Demurrage

The Illinois Supreme Court holds that a demurrage charge stands upon the same footing as any other charge in connection with transportation and was properly included in a tariff required by law to be published. The rules, which make some exceptions to such charges on account of weather conditions, bunching of cars, errors in notices and other railroad errors, make no mention of failure to load or unload because of a strike, and a consignee is held not exempt from demurrage caused thereby. Nor is it material whether the demurrage accrued on interstate or intrastate shipments.—Davis v. Keystone Steel & Wire Co. (Ill.) 148 N. E. 47.

Expense Connected With Crossing Track By Water Mains

The Connecticut Supreme Court of Errors holds that a contract whereby a railroad permitted a city to cross its right of way with water mains, the city agreeing to indemnify the railroad against expenses in connection with construction and maintenance of mains, gave the railroad the right to recover the cost of inspection and supervision; and the railroad's submission of bills for such expenses to the contractor at the city's request did not absolve the city from liability.—New York, N. H. & H. v. Board of Water Commissioners (Conn.) 129 Atl. 384.

Cars Left on Crossing—No Negligence

In a crossing collision case, where plaintiff drove his automobile into cars standing on a crossing, it appeared that plaintiff's headlights were burning brightly and that he could have seen the cars in time to stop before striking them. The Circuit Court of Appeals, Sixth Circuit, holds that the railroad had the right to occupy the crossing for its legitimate purposes, and while so occupying it was not required to maintain lights on its cars. There was nothing in the evidence to show that it was unnecessarily using it; but, if the Ohio statute making it a misdemeanor unnecessarily to obstruct a public highway with cars or locomotives for more than five minutes could be said to limit the right of occupancy by necessity and for legitimate purposes to five minutes, it was held that the additional use, even if negligent, was an incident and not a concurring proximate cause of the accident, and that the proximate cause thereof was the plaintiff's negligence. Judgment for defendant was affirmed.—Orton v. Pennsylvania, 7 Fed. (2d) 36.

Equipment and Supplies

Locomotives

THE CHICAGO, ROCK ISLAND & PACIFIC is now inquiring for 10 Mikado type and 5 Mountain type locomotives.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE is revising its inquiry for 6 Mikado type locomotives reported in the *Railway Age* of February 6.

THE SOUTHERN RAILWAY is inquiring for 46 Mikado and 5 Mikado type locomotives, 23 Pacific type, 7 Mallet type, 22 eight-wheel switching type and 10 consolidation type locomotives.

THE CANADIAN PACIFIC has ordered 24 Pacific type locomotives from the American Locomotive Company, Montreal works. These locomotives will have 23 in. by 30 in. cylinders, and a total weight in working order of 306,000 lb. An order has also been given to the Canadian Locomotive Company, Kingston, Ont., for 20 Mikado type locomotives.

Freight Cars

THE SEABOARD AIR LINE is inquiring for 50 caboose cars.

THE ALUMINUM COMPANY OF AMERICA is inquiring for 18 flat cars of 50 or 70 tons' capacity.

THE NORTHWESTERN REFRIGERATOR LINE is inquiring for 500 refrigerator cars of 40 tons' capacity.

THE GREAT NORTHERN has ordered 250 underframes from the Siems Stemble Company. Inquiry for this equipment was reported in the *Railway Age* of February 13.

THE CHICAGO & EASTERN ILLINOIS has ordered 500 hopper cars from the Mt. Vernon Car Manufacturing Co. Inquiry for this equipment was reported in the *Railway Age* of February 6. This company is rebuilding 1,500 hopper cars of 50 tons' capacity in its own shop, 300 having been rebuilt to date.

THE ILLINOIS CENTRAL has ordered 600 drop bottom gondola cars from the Standard Steel Car Company, 500 from the Pullman Car & Manufacturing Corporation, 500 from the Illinois Car & Manufacturing Co., 500 from the Mt. Vernon Car Manufacturing Co., and 200 flat bottom gondola cars from the Ryan Car Company. Inquiry for this equipment was reported in the *Railway Age* of January 30.

Passenger Cars

THE SEABOARD AIR LINE is inquiring for 6 combination passenger and baggage cars.

THE RICHMOND, FREDERICKSBURG & POTOMAC is inquiring for 4 steel passenger cars and 6 steel express cars.

THE LONG ISLAND having completed arrangements for turning over its parlor car business to the Pullman Company, is now dismantling its 20 chair cars and will convert them into coaches.

THE BOSTON & MAINE has ordered 10 gas-electric motor passenger cars from the Osgood-Bradley Car Company. The Electro-Motive Company will install the power equipment in these cars.

THE NEW YORK, WESTCHESTER & BOSTON is inquiring for 10 steel electric passenger cars. In the *Railway Age* of January 16 it was reported that this company contemplated coming into the market soon for 20 multiple unit cars.

THE SOUTHERN RAILWAY has ordered 15 combination baggage and express cars, 30 coaches, 4 postal cars and 6 combination mail and baggage cars from the Pullman Car & Manufacturing Corporation. An unconfirmed report was published in the *Railway Age* of February 20 that this equipment had been ordered from the Pullman Car & Manufacturing Corporation.

THE BROOKLYN MANHATTAN TRANSIT COMPANY has placed orders for 67 articulated units comprising 201 subway steel car bodies, each unit including 4 trucks with motors mounted on each truck. Contracts for the car bodies and trucks have been given to the Pressed Steel Car Company and for the motors and electrical control equipment to the General Electric Company. Inquiry for this equipment was reported in the *Railway Age* of January 16.

Iron and Steel

THE SOUTHERN is inquiring for 800 tons of steel.

THE LONG ISLAND is inquiring for 600 tons of steel for bridges.

THE WESTERN MARYLAND is inquiring for 500 tons of steel for two bridges.

THE READING is inquiring for 300 tons of steel for a bridge in Philadelphia.

THE CENTRAL OF NEW JERSEY is inquiring for 500 tons of steel for four bridges.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 28,000 tons of rails from the Illinois Steel Company and 5,000 from the Inland Steel Company, the orders including 8,000 tons of track fastenings.

Machinery and Tools

THE NEW YORK CENTRAL has ordered a Bridgeport heavy duty service grinder from Manning, Maxwell & Moore, Inc.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for one turning lathe, one boring machine and one turning and boring mill.

THE AMERICAN BROWN, BOVERI ELECTRIC CORPORATION has ordered a Putnam gap lathe from Manning, Maxwell & Moore, Inc.

THE CHICAGO & EASTERN ILLINOIS has ordered a Chambersburg single end punch and shear from Manning, Maxwell & Moore, Inc.

THE BROOKLYN CITY RAILROAD has ordered a Putnam car wheel borer and a Putnam coach wheel lathe from Manning, Maxwell & Moore, Inc.

THE NEW YORK RAPID TRANSIT COMPANY has ordered a Mitts & Merrill giant key seat milling machine and a Columbia heavy duty crank shaper from Manning, Maxwell & Moore, Inc.

THE ATCHISON, TOPEKA & SANTA FE has issued an additional inquiry for three 26-in. drills, two portable lathes, one 42-in. boring mill and one side rod milling machine. The tool list now includes 16 machine tools.

Signaling

THE PENNSYLVANIA has ordered a complete new electro-pneumatic interlocking machine, 14 working levers, for installation at Overbrook, Pa.; to be furnished by the Union Switch & Signal Company.

THE SOUTHERN PACIFIC has ordered from the Union Switch & Signal Company 238 one-arm and 89 two-arm Style "B" semaphore signals, 1,178 d.c. relays and 315 vertical rotary switch circuit controllers for installation on the following sections of its lines in Texas: Sanderson to Marfa, 103 miles; Cline to Del Rio, 55 miles; Hearne to Mexia, 53 miles; all single track.

THE CHICAGO, BURLINGTON & QUINCY, the Great Northern and the Northern Pacific have placed contracts with the Sprague Safety Control & Signal Corporation for automatic train stop equipment to be installed on their second divisions, as required by the Interstate Commerce Commission. That of the Chicago, Burlington & Quincy extends from Burlington, Ia., to Creston, 187 miles, double track; that of the Great Northern from Williston, N. D., to Wolf Point, Mont., 107 miles, single track, and that of the Northern Pacific from Dickinson, N. D., to Glendive, Mont., 106 miles, single track.

Supply Trade News

The Morton Manufacturing Company, Chicago, will construct a two-story factory 85 ft. by 220 ft., to cost approximately $95,000.

T. C. Moss, Magnolia building, Dallas, Texas, has been appointed representative of the **General American Tank Car Corporation,** Chicago.

The Oliver Electric & Mfg. Company has removed its factory and general office from St. Louis, Mo., to 1334 North Kostner avenue, Chicago, Ill.

H. M. Pratt, general sales manager of the **Southern Iron & Equipment Company,** Atlanta, Ga., has been elected second vice-president and sales manager and **R. A. Garner,** who has been connected with this company since 1910, succeeds the late A. J. Merrill as secretary and treasurer.

Godwin Shenton, formerly assistant to the president and manager of the Coplan Steel Corporation, Ogdensburg, N. Y., is now associated with **The Q and C Company** in the mechanical staff and will specialize and co-operate with the Ohio Steel Foundry Company, of Springfield and Lima, Ohio, in the manufacture and sale of locomotive grate bars made of special heat enduring steel. Mr. Shenton's headquarters will be at 90 West street, New York City.

G. Shenton

The Superheater Company of New York and Chicago recently elected **M. Schiller,** vice-president in charge of accounts and purchases, and **W. F. Jetter,** treasurer and assistant secretary. **Bard Browne** was appointed assistant to vice-president in charge of sales and service and **T. F. Morris,** assistant secretary and assistant treasurer. All of these men have been long associated with the Superheater Company. Mr. Schiller joined the company in 1910 when it was organized as the Locomotive Superheater Company, and has served in various administrative and executive capacities. Mr. Browne came with the company in 1914 and has been actively identified in the application of locomotive superheaters and feedwater heating devices, serving in various engineering, sales and service capacities.

The Cutler-Hammer Manufacturing Co., Milwaukee, Wis., has opened a new sales office in the Healey building, Atlanta, Ga. **A. C. Gibson,** formerly of the Philadelphia office, is in charge of this office. **The General Machinery Co.,** Birmingham, Ala., will continue to serve its trade in the northern half of Alabama.

Following the death of R. E. Bebb, chairman of the board, which was noted in the *Railway Age* of January 9, various officers of the **Central Steel Company,** Massilon, Ohio, were promoted as follows: **F. J. Griffiths,** chairman of the board; **C. E. Stuart,** president and treasurer; **B. F. Fairless,** vice-president and general manager; **J. M. Schlendorf,** vice-president in charge of sales, and **Charles C. Chase, Jr.,** secretary. **George H. Freeborn,** who has been auditor of the company for a number of years, was elected a member of the board and assistant treasurer.

The Standard Forgings Corporation, of Delaware, has elected the following directors and general officers: **G. E. Van Hagen,** president and general manager; **C. R. Lewis,** vice-president and general manager of sales; **L. C. Ryan,** vice-president and treasurer and **A. C. Stockton,** vice-president and secretary. The recently acquired Pollak Steel Company plant at South Chicago, Ill., will be operated under the name of Standard Forgings Company, South Chicago plant. The plant at Indiana Harbor, Ind., will continue under the name of Standard Forgings Company and the plant at East St. Louis, Ill., will continue under the name of St. Louis Forgings Company.

The stockholders of the **Pressed Steel Car Company** have approved the plan for the merger into that company of the Western Steel Car & Foundry Company, all the stock of which was owned by the parent company. The stockholders also approved a change in the capital structure, calling for the establishment of cumulative preferred stock. The plan as submitted to the stockholders was published in part in the *Railway Age* of February 13. F. N. Hoffstot, president of the Pressed Steel Car Company, stated that the Skelly interests had acquired a large holding in the Pressed Steel Car Company and that **J. S. Skelly** had been elected a director, succeeding George H. Russell, resigned.

W. B. DeForest, manager of the Kansas City distributing house of the **Graybar Electric Company,** New York, has been transferred and is now sales manager of the company, with headquarters at New York. **J. F. Davis,** formerly sales manager at New York, has been transferred to the general staff department, at 100 East Forty-second street, New York. **F. G. Caldwell** has been appointed manager of the Houston, Texas, distributing house. He will report to R. W. Van Valkenburgh, manager of the Graybar Dallas house. **R. F. Copes** has been appointed sales manager of the Norfolk, Va., distributing house, reporting to G. T. Marchmont, manager of the Richmond distributing house.

W. B. Causey, who has been elected vice-president of the **M. E. White Company,** with headquarters in Chicago, was born on June 24, 1865, at Suffolk, Va., and entered railway service as a chainman on the Atlantic & Danville in 1883. Until 1914 he was with the engineering departments of various railways including the Union Pacific, the New York, New Haven & Hartford, the Chicago & North Western, the Chicago Great Western and the Chicago & Alton. From 1914 to 1917 he was vice-president and general manager of the Norwood-White Coal Company at Des Moines, Ia. He was appointed a captain in the U. S. Army on June 13, 1917, and was assigned to the Seventeenth Engineers. He was made a major on March 18, 1918, and a lieutenant colonel in September, and was sent to Vienna, Austria, as coal and transportation expert. From January to October, 1919, he was president of the Allied Railway Mission in Austria Hungary, and from September, 1919, to July, 1923, was technical adviser to the Austrian government. Since September 1, 1923, he has been city manager of Norfolk, Va.

Autocar Company Refinancing

Refinancing of the Autocar Company of Ardmore, Pa., to include an issue of non-voting stock, with provisions in the by-laws regarding the issue which will meet with the requirements of the New York Stock Exchange, is being planned by a group of New York and Philadelphia banking interests. The plan provides for by-laws to protect the interest of the holders of the non-voting stock and to grant to them the right to take over voting power any time they desire.

The proposed reorganization calls for three separate classes of stock—a preferred issue and two issues of common stock, Class A and Class B. The Class A stock will have preference as to dividend payments and preference as to assets, but it will not carry voting power. The Class B stock will be subordinate to the Class A as to dividends and assets, but will carry the right to vote. The holders of Class A stock will have the right to convert their stock into Class B shares on a share-for-share basis at any time the stockholder desires.

Stockholders have been requested to deposit their stock in approval of the plan, and negotiations with the bankers are expected to result in the sale of part of the new securities as soon as the present outstanding preferred and common stock has been deposited. It is expected that the contemplated sale of securities

will realize sufficient funds to pay off the funded debt and provide additional working capital to take care of the increasing volume of business.

Obituary

Phelps Johnson, president of the board of directors of the Dominion Bridge Company, died on February 19 at Montreal, Quebec.

Daniel M. Brady, president and treasurer of the Brady Brass Company, Jersey City, N. J., died suddenly on February 23 while on a visit to Atlantic City. Mr. Brady was born in New York City in 1854 and entered the service of the New York Central as an office boy, in 1871, and served as a clerk to J. M. Toucey, superintendent of the Hudson River division, and general manager of the Grand Central Terminal. He later was promoted and served in the office of the superintendent of car repairs under Leander Garey. He afterwards served under William Buchanan and then became connected with a car wheel company in Rochester. He subsequently was identified with the Paige Paper Car Wheel Company and then started a brass company under the name of the Brady Metal Company, with office on lower Broadway, New York. About 1888 he organized the Brady Brass Company, of which he was president and treasurer at the time of his death. Mr. Brady was very active during the World War in securing funds for the welfare of the soldiers in the old 69th Regiment of New York, of which Father Duffy was chaplain. This became the 165th Regiment of the 42nd Division. After the men were mustered out of service he gave much time and effort in assisting them in securing employment. He was widely and favorably known in the railway world because of his intense interest in the various railway clubs. He was one of the charter members and a tireless booster of the New York Railroad Club and was instrumental in getting other clubs started or in helping them over hard spots.

D. M. Brady

Trade Publications

CELITE.—The Celite Products Company, Los Angeles, Cal., has issued Bulletin 314 of 12 pages outlining the characteristics of this material and the effect of its use as an admixture of concrete. It is illustrated with photographs of structures in which it has been used, particular attention being given to pavements, tanks and concrete in sea water.

NICKEL STEEL DATA.—The International Nickel Co., New York, will issue a series of 12 technical bulletins 8½ in. by 11⅛ in. on Nickel Steel, with loose leaf type binders. Bulletin No. 1 on Society of Automotive Engineers, Standard Specifications for Steel and No. 2 on Physical and Mechanical Properties of Nickel Steels have already been issued. Subsequent bulletins will be issued at bi-monthly intervals. Binders for the bulletins are available and will be furnished on request.

Y. P. FLOORING.—The Southern Pine Association, Architectural and Engineering Service Department, has issued Technical Bulletin No. 1 on Southern yellow pine flooring. It is the first of a series of bulletins to be issued from time to time containing information about the physical characteristics of wood, its manufactured sizes, shapes and grades. These bulletins are designed to form a complete condensed library of usable working information. Bulletin No. 1 on flooring covers such sub-divisions as quality, sizes, edge grain, flat grain, etc., recommended uses of grades and sizes and instructions for the laying of yellow pine floors.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—Jointly with the city of Ponca City, Okla., plans are being prepared for the construction of a viaduct over the railway tracks at Grand avenue in Ponca City to cost $160,000.

BOSTON & ALBANY.—A contract has been awarded to Charles S. Clark, Boston, Mass., for special track material for the new station under construction at Springfield, Mass.

CANADIAN NATIONAL.—Nearly $6,000,000 will be spent this year by this company on its branch lines, according to an estimate tabled in the House of Commons at Ottawa. This is a part of the three-year program approved by Parliament in 1924. Between fifteen and twenty branches throughout the Dominion remain incomplete. On seven of these, track will be laid during 1926. The biggest expenditure will be on the Turtleford, Sask., branch on which about 44 miles of track will be laid and $1,571,000 expended. A million dollars will be spent on the Dunblane-Central Butte, Sask., branch, and $915,000 will be spent on the Rosedale, Sask., branch, which will be practically completed this year. At least two other branches will be practically completed this year, the St. Paul S.E., Alta., and the Acadia Valley branches, on each of which about half a million dollars will be spent. A total of 168.3 miles of track will be laid on branch lines this year, under present plans. The only two branches on which no work at all will be done are the Kingsclear-Vanceboro, N. B., and the Grande Fresniere, Que.

CHICAGO, ROCK ISLAND & PACIFIC.—The construction of a new station and eating house at Tucumcari, N. M., to cost $69,000, and of a warehouse at Kansas City, Mo., to cost $55,000, is contemplated.

DENVER & SALT LAKE.—In the *Railway Age* of February 13 it was erroneously reported that the Interstate Commerce Commission had made public an examiner's report on this company's application for a certificate authorizing the construction of a line from Provo, Utah, to Craig, Colo. The company which has made the application referred to is the Salt Lake & Denver.

DETROIT & IRONTON.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Petersburg, Va., to Toledo, Ohio, 14½ miles.

PECOS & NORTHERN TEXAS.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Floydada, Tex., to the southeast corner of Floyd county, 15 miles.

PENNSYLVANIA.—Second track will be constructed on the St. Louis division west of Terre Haute, Ind., for a total distance of 45 miles, the cost being estimated at $3,500,000. The project includes 10.3 miles of second track between Altamont, Ill., and Brownstown, 12.7 miles from Pierron to St. Jacob's, and 22 miles from Casey to Montrose.

PENNSYLVANIA.—A contract has been awarded to Harsh & Richardson, Minerva, Ohio, for the construction at Bayard, Ohio, of an electro-pneumatic signal tower for 39 levers. A contract has been awarded to the T. J. Foley Company, Pittsburgh, Pa., for the construction of a bridge over a public highway at Burn's Crossing, Eldorado, Pa.; estimated cost, $30,000.

PEORIA & PEKIN UNION.—Bids are being received for the construction of a 500-ton reinforced concrete coaling station at Peoria, Ill.

SALT LAKE & DENVER.—See Denver & Salt Lake.

SAN JUAN BASIN LINE.—Plans for the construction of a new railroad line from Albuquerque, N. M., into the San Juan basin, have been changed to make Farmington, N. M., the terminus instead of Cuba, N. M. Grading is already under way between Albuquerque and La Ventana, 25 miles. The line is being promoted by Sidney M. Weil of Albuquerque.

SEABOARD AIR LINE.—According to letter addressed by S. Davies Warfield, president of this road, to stockholders, the company contemplates building new lines, leasing lines and acquiring trackage rights which will give it a westerly connection between its east-west lines and provide a new route between Florida and the North and West. Route mileage to be added in this manner would total 637, of which a considerable portion would be new construction. "This will," says Mr. Warfield's letter, "give the Seaboard System its third line of railroad to Tampa, St. Petersburg, intermediate and other Florida points and a new short main line to and from these points, opening up new gateways via the West Coast, Perry (Fla.), Albany (Ga.), Montgomery (Ala.) and Birmingham (Ala.), to the West; and a short line to Atlanta (Ga.), Macon (Ga.), and intermediate points, also a short line from Atlanta via Macon to Jacksonville, Fla., shortening the Seaboard's present haul via Savannah; and the shortest line via Macon to Savannah, Ga. This opens up a new and important short line route from the West via the Western gateways of Birmingham and Montgomery, Ala., also from Atlanta, Ga., via the proposed Inglis-Dunnellon-Wildwood cutoff to West Palm Beach-Palm Beach, Miami, Homestead, Florida City and other important points on the East Coast and in the ridge country of Florida."

SOUTHERN PACIFIC.—Plans are being prepared for the construction of a 240-ft. steel and reinforced concrete span bridge over the Rio Grande river at Hidalgo, Tex., to cost $110,000.

SOUTHERN PACIFIC.—A contract has been awarded to Dwight P. Robinson & Co., New York, for the construction of a freight terminal at Houston, Tex., estimated to cost approximately $1,000,000. The terminal will include a freight depot, freight warehouse, transfer platform and trackage facilities and will cover an area of approximately 30 acres. The headhouse and office building will be of concrete and brick, two stories in height, with dimensions of 202 ft. by 40 ft. The inbound freighthouse will be 1,080 ft. by 45 ft., outbound freighthouse, 1,140 ft. by 28 ft.

ST. LOUIS SOUTHWESTERN.—The following construction work is planned for this year: Grade reduction on Gilkerson Hill at Gilkerson, Ark., to cost $103,000; construction of 200-ton coaling station at Malden, Mo., to cost $31,000; and construction of approximately 11,000 ft. of lap sidings at Mesler, Mo., and Randles, to cost a total of $53,000.

TUXPAN & SALTILLO.—Julian F. Lozano of Tuxpan, Jalisco, Mexico, announced recently at San Antonio, Tex., that a new railway is projected to serve the agricultural territory in the vicinity of Tuxpan. The construction proposed is estimated to cost approximately $20,000,000.

TWIN BRANCH.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line of 7 miles in St. Joseph county, Ind.

VENICE, ENGLEWOOD & SOUTHERN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from a connection with the Seaboard Air Line at Venice, Fla., to Englewood, Fla., 13 miles, and contemplates extending the line eventually from Englewood to a point on the Charlotte Harbor & Northern, 8 or 10 miles more. Funds for the construction are to be provided by the Seaboard Air Line.

Passenger Station, Lwow, Poland

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—*Acquisition.*—In an application filed with the Interstate Commerce Commission this company has asked authority to acquire control of the Fresno Interurban by lease and purchase of stock.

ATLANTIC CITY.—*Tentative Valuation.*—The Interstate Commerce Commission has issued a tentative valuation report placing the final value for rate-making purposes at $7,802,500 for the property owned and $7,935,000 for that used, as of 1917.

ATLANTIC COAST LINE.—*Acquires Atlanta, Birmingham & Atlantic.*—Announcement was made on February 24 that the Atlantic Coast Line will acquire the Atlanta, Birmingham & Atlantic. There will be a reorganization of the latter and preferred stock will be issued, on which the Coast Line will guarantee 5 per cent dividends, in payment of present A. B. & A. bonds at the rate of $60 of stock for each $100 of the bonds. All the common stock in the reorganized company is to be owned by the Coast Line and the stock of the present company is to be eliminated. It is understood that the A. B. & A. will be operated independently. It operates 635 miles of line and the present receivership dates back to February 25, 1921.

Announcement of the acquisition of the A. B. & A. by the Coast Line was made as follows:

"The announcement is made by Colonel B. L. Bugg, receiver of the Atlanta, Birmingham & Atlantic, that a plan of reorganization has been adopted by the bondholders' committee representing the Atlanta, Birmingham & Atlantic's 5 per cent income bonds and the first 5s, and an agreement has been entered into by both of these committees with the Atlantic Coast Line under the terms of which, subject to the approval of the Interstate Commerce Commission and a substantial amount of the bondholders of each issue, a company will be organized without bonded debt. The Atlantic Coast Line is to assume the obligations of the receivership now existing prior to the outstanding bonds and to guarantee dividends at the rate of 5 per cent on an issue of first preferred of the new company, said dividends to commence one year from the date of acquisition. The stock is to be issued in exchange for the outstanding bonds of both of the above named issues at the rate of $60 face value of stock for each $100 in bonds. All of the common stock of the new company is to be held by the Atlantic Coast Line. No provision is made for the participation by stockholders of the Atlanta, Birmingham & Atlantic Railway Company. It is understood that the Atlantic Coast Line will operate the properties as an independent corporation."

BALTIMORE & OHIO.—*Bonds.*—The Interstate Commerce Commission has authorized an issue of $34,308,500 of refunding and general mortgage 5 per cent bonds, $30,000,000 of which are to be sold at 92½ and the remainder to be pledged as collateral security for notes. The commission has issued a supplemental order at the request of the company vacating that part of its order of October 31, 1925, which authorized an issue of $6,125,000 of refunding and general mortgage 6 per cent bonds.

CHICAGO & NORTHWESTERN.—*Acquisition of Omaha Authorized.*—Interstate Commerce Commission has authorized acquisition by the Chicago & Northwestern of further control of the Chicago, St. Paul, Minneapolis & Omaha by the purchase of additional stock and authorized the Northwestern to issue $15,259,450 of common stock in exchange for stock of the Omaha.

DELAWARE & HUDSON.—*Bonds Sold.*—Kuhn, Loeb & Co., and the First National Bank have sold $2,196,000 four per cent first and refunding mortgage bonds, maturing May 1, 1943, at 92, yielding 4.68 per cent to maturity.

DELAWARE & HUDSON.—*Regular Dividend.*—The regular dividend of $2.25 a share, action on which was deferred last month until the year's earnings figures were available, has been declared, payable March 20 to stockholders of record March 5.

DELAWARE, LACKAWANNA & WESTERN.—*New Directors.*—Clarence W. Wooley, president of the American Radiator Company, Lowell R. Burch, vice-president of the Atlas Portland Cement Company and Horace Havemeyer, director of sugar companies have been elected directors, succeeding Henry R. Taylor, deceased and Henry B. Spencer and Frank Rysavy.

GEORGIA SOUTHERN & FLORIDA.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $9,451,992 as of 1915.

INTERSTATE.—*Government Sues for Excess Earnings.*—The Department of Justice has brought suit in the United States district court at Roanoke, Va., at the request of the Interstate Commerce Commission and the Treasury to recover $194,852 as the amount which this company earned during the six months period following the termination of federal control in excess of the amount guaranteed by the government.

KANSAS, OKLAHOMA & GULF.—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue $1,410,000 of 6-year 6 per cent collateral notes to the director general of railroads to be exchanged for the present government lien notes; $4,000,000 of first mortgage 6 per cent gold bonds, of which $1,999,000 are to be sold at par for additions and betterments and $2,001,000 to be deposited with the director general as collateral for the notes; $2,845,326 of 6 per cent preferred stock in exchange for outstanding bonds; $281,919 6 per cent non-cumulative preferred stock to be exchanged for bonds; and $5,785,550 non-cumulative preferred stock to be exchanged for bonds.

LEHIGH & HUDSON RIVER.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of 1918 placing the final value for rate-making purposes at $5,090,000 for the property owned and $5,090,027 for the property used.

LITHONIA & ARABIA MOUNTAIN.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes to be $47,000 as of 1916.

MISSOURI-ILLINOIS.—*Notes.*—In an application filed with the Interstate Commerce Commission this company asks authority to issue $300,000 of 6 per cent notes and to retire $492,000 of first mortgage 7 per cent bonds due in 1931.

NORTHERN PACIFIC.—1925 *Earnings.*—The Northern Pacific has issued to stockholders a preliminary statement of the income account for 1925 which shows net corporate income after charges of $17,944,288, equivalent to $7.23 on the stock as compared with $15,970,244, to $6.44 on the stock in 1924. The statement follows in brief:

	1925	1924
Revenue from freight transportation	$76,301,308	$73,422,540
Revenue from passenger transportation	13,201,179	13,167,942
Revenue from mail, express and other railway operations	8,362,067	8,701,922
Total railway operating revenues	97,864,554	95,292,404
Railway operating expenses	*69,972,476	*70,533,064
Operating ratio-per cent	71.50	74.02
Transportation ratio-per cent	34.27	35.88
Net revenue from railway operations	27,892,078	24,759,340
Taxes	9,372,270	8,563,154
	$18,519,808	$16,196,186
Equipment and joint facility rents	3,707,511	3,664,891
Net railway operating income	22,227,319	19,861,077
Other income	†11,079,164	†11,483,432
Total income	$33,306,483	$31,344,508
Deductions from income		
Interest	‡15,025,329	‡15,065,078
Other	336,866	309,186
Balance for dividends and other corporate purposes	17,944,288	15,970,244
Dividends declared	12,400,000	12,400,000
Surplus	$5,544,288	$3,570,244

* Includes depreciation of equipment charged at four per cent, and amounting in 1925 to $3,987,072. This is a charge in the accounts and does not represent actual cash spent.
† Includes $8,301,790. dividends from C. B. & Q. stock.
‡ Includes $6,852,691. interest on bonds issued for account C. B. & Q. Stock.

PENNSYLVANIA.—*Director Deceased.*—George Wood, a director of the Pennsylvania since 1891 and the senior member of the board, both in service and in age, died in Philadelphia on February 17, at the age of 84 years.

PENNSYLVANIA.—*Control of Western Allegheny.*—The Interstate Commerce Commission has authorized the acquisition of the Western Allegheny by purchase of capital stock. The Pennsylvania has purchased 12,000 of the Western Allegheny's 30,222 outstanding shares of $50 par value and is now given authority to purchase the remaining 18,222 shares at par from the North Penn Coal Company. The funds for this purpose will be taken from the Pennsylvania's treasury and no securities are proposed to be issued. The line of the Western Allegheny extends from West Pittsburgh, Pa., to Brady's Bend. Its traffic is chiefly bituminous coal, most of which moves to the Great Lakes and limestone which moves to the Pittsburgh district. It has no connection at present with the Pennsylvania. The latter plans to expend about $250,000 for rehabilitation and to build two new connecting lines. One costing about $8,000,000 will be built from a point near Red Bank on the Pennsylvania's low grade line to a point on the Western Allegheny about 2 miles east of Queen Junction, 24 miles. The other costing about $1,150,000 will extend from a point on the Western Allegheny near West Pittsburgh to a connection with the Pennsylvania's Erie and Ashtabula division at a point south of Lawrence Junction, Pa. Most of the first line would parallel the Allegheny's railroad, but it is not planned to remove any of the Allegheny's line, as that railroad will continue to serve the industries located on it.

The Pennsylvania intends to utilize part of the Allegheny's line as a portion of a proposed through route north of Pittsburgh by which freight and, if necessary, passenger traffic can be kept out of the Pittsburgh gateway. The construction of the new lines and the operating features mentioned, however, are not covered by the present approval of the acquisition.

PERE MARQUETTE.—*Abandonment.*—The Interstate Commerce Commission has authorized the abandonment of the White Cloud-Big Rapids branch, 19.67 miles, in Michigan. A similar application was denied in 1922. Reason for abandonment is insufficient traffic. The Pere Marquette has offered to sell the line for $20,000, the junk value, to any one who may desire to continue its operation.

ROCKY MOUNTAIN & SANTA FE.—The commission has approved the leasing of the Rocky Mountain & Santa Fe by the Atchison, Topeka & Santa Fe. The Santa Fe controls the Rocky Mountain & Santa Fe by ownership of its entire capital stock and operates it under a lease which expired on July 1, 1925. The new lease is for a term of 10 years from that date.

SEABOARD AIR LINE.—*Ambitious Florida Plans.*—New construction, acquisition of existing lines, etc., embodying an addition of 637 miles of railroad in Florida and the establishment of a new route which will add approximately $10,000,000 to the annual gross revenues of the company are announced in a letter addressed to stockholders on February 16, by S. Davies Warfield, president.

Mr. Warfield, in his letter outlines the program as follows:

"The new construction, leased lines, cutoffs and trackage rights will give the Seaboard System its third line of railroad to Tampa, St. Petersburg, intermediate and other Florida points and a new short main line to and from these points, opening up new gateways via the West Coast, Perry, Fla., Albany, Ga., Montgomery, Ala., and Birmingham, Ala., to the West; and a short line to Atlanta, Ga., Macon, Ga., and intermediate points, also a short line from Atlanta via Macon to Jacksonville, Fla., shortening the Seaboard's present haul via Savannah; and the shortest line from Atlanta via Macon to Savannah, Ga. This opens up a new and important short line route from the West via the Western gateways of Birmingham and Montgomery, Ala., also from Atlanta, Ga., via the proposed Inglis-Dunnellon-Wildwood cutoff, to West Palm Beach-Palm Beach, Miami, Homestead, Florida City and other important points on the East Coast and in the ridge country of Florida.

"Thus will be realized the Seaboard's long contemplated plan for a connection between its Atlanta-Birmingham line and its Savannah-Montgomery line and its Florida lines; the new line will also materially relieve the Jacksonville-Tampa main line to the East and West. The new construction, together with the cutoffs, leased lines and trackage rights, in conjunction with other Seaboard lines, will ensure the prompt handling of Florida's growing traffic by the Seaboard System to all points."

The letter also announces that privilege is given to stockholders to subscribe to the capital non-par stock of the Investment & Securities Company of Florida, which was organized to acquire large acreages of property through which the new line will run. After rights of way, station and terminal sites are either donated or supplied the railroad at cost, the balance will be developed in the interest of the Seaboard System.

The Investment Company has acquired approximately 86,000 acres of land situated in eight counties of Florida and susceptible of a high degree of cultivation, has a large coastal frontage and includes sites for hotels, towns and industries, and a large acreage

in the towns of Naples and Fort Ogden, to which points the Seaboard is now extending its lines.

The Investment & Securities Company of Florida has an authorized capital of 500,000 shares of stock without par value. Of this stock 304,753 shares are offered Seaboard stockholders at $25 per share on the basis of one-half share of Investment Company stock for each share of preferred or common stock of the Seaboard Air Line owned and standing in the name of shareholders of record at the close of business on February 24, 1926, subscriptions to be accompanied by check for $10 per share, the right of subscription closing March 11. Further payments run from one to ten years.

Mr. Warfield states that "20,000 shares of stock will be offered those officials and others of the Seaboard Air Line below the rank of president (who is a stockholder) who have refrained from opportunities offered for individual investment in Florida lands because of the unwritten purpose of those having intimate relations with land purchases and with the railroad to do nothing which might interfere with the railroad securing the requisite property for its purposes at the lowest obtainable cost." President Warfield had stated in testimony before the Interstate Commerce Commission on October 6, 1925, that while large opportunities had been offered for his individual participation in the purchase of Florida lands, he had refrained as a duty to act for the Seaboard alone in such matters.

The total cost of the land is given at $7,500,000 exclusive of working capital and unadjusted taxes. It is also stated that the price at which these lands were acquired justify a substantial profit, but it is to be understood that profits will be subordinated to the primary object of securing rights of way, station and terminal sites and profitable business from the character of development of the property.

Mr. Warfield adds the following comment concerning future plans of the Seaboard Air Line as follows:

"The president of the Seaboard wishes to add that the plans set forth herein if carried out would knit the Seaboard lines of railroad into a compact transportation system within a territory of a character and of such size as will preserve the personal contact between railroad officials and the shippers and users of transportation which is essential to secure efficient service and the comprehensive development of territory traversed and not attainable in the greater territories contemplated by the larger continuous mileage systems advocated in some directions.

"The Seaboard Air Line prefers to establish its western frontier not far distant from the Birmingham and Montgomery gateways to the West. At these gateways the Seaboard System possesses admirable competitive advantages through connection with four competing systems of railroad leading into and through the West, which would not be obtainable in the larger continuous mileage systems, nor could the personal contact referred to between officials and shippers be preserved, which would be prohibited by distance.

"The impression often sought to be created that a very great aggregation of continuous railroad mileage in one system extending across the continent is economically sound is a mistake. It has been further suggested respecting such consolidations that the territories they occupy should be laid out so as to yield comparatively like returns to the respective competitive consolidated systems operating therein; apart from this being destructive of effective competitive service it would retard development. Any plan which has for its objective the laying out of railroad territories which shall yield a like return to the respective so-called competitive consolidated systems operating therein must in itself be destructive of competitive service and is uneconomical in its conception—it is a contradiction on its face.

"The Seaboard Air Line Railway should develop its territory—an empire within itself—making extensions as the public interest may demand within the limits of a reasonable mileage and such as will permit the personal relations and contact between its officials and its people essential to study and know their wants. The Seaboard wishes to be left free to exchange its traffic not as part of or with one railroad system but with many at competitive points, and not be made a party to unwieldy and ill-advised consolidations with more attention paid to the profits in their making than to meet the demands of traffic by preserving its natural flow. This is exemplified in what the Seaboard has accomplished for Florida and other territory."

SOUTH PLAINS & SANTA FE.—The Interstate Commerce Commission has approved the making of a new lease of the South Plains & Santa Fe by the Panhandle & Santa Fe. The former was leased to the latter in 1917 for a term of 10 years. The new lease is held desirable to include the new 65 mile line extending west from Doud, Tex., now practically completed. The new lease is also for a term of 10 years.

SPRINGFIELD, HAVANA & PEORIA.—*Securities Authorized.*—The Interstate Commerce Commission has authorized this company, newly organized in the interest of the Commonwealth Edison Company, Chicago, to take over and operate that portion of the former Chicago, Peoria & St. Louis from Springfield, Ill., via Havana to Pekin, 77 miles.

The commission has also issued a certificate authorizing the Chicago & Illinois Midland (owned by eastern interests for the benefit of the Edison Company) to acquire control of the new company by purchase of stock and also to operate under trackage rights over the Illinois Central between Springfield, Ill., and Pawnee Junction, where connection is made with its own line.

Approval was also given for the issuance by the Springfield, Havana & Peoria of $1,960,000 first mortgage bonds and $500,000 common stock and for the issuance by the Chicago & Illinois Midland, of $4,600,000 first mortgage bonds and $600,000 common stock. Consideration of that part of the carrier's application asking approval of a lease of the Springfield, Havana & Peoria by the Chicago & Illinois Midland was deferred until a revised lease was submitted.

All the stock and $970,000 of the bonds issued by the Springfield, Havana & Peoria will be sold to the Commonwealth Edison Co., at par, the proceeds to be used for rehabilitation of the Pekin line and for working capital and the remaining $990,000 of bonds will be turned over to the same company in reimbursement of money advanced for the purchase of the Pekin line, for organization expenses, etc. All the stock and $2,100,000 of the bonds proposed to be issued by the Chicago & Illinois Midland, will be sold to the Commonwealth Edison Co., at par and the proceeds used to pay for the Springfield-Pekin line and the remaining $2,500,000 of bonds used to redeem a like amount of first mortgage bonds now outstanding.

Commissioner Eastman dissented, saying that:

"This case has points of considerable public interest. It illustrates a species of business greed which at least we ought not to abet. The facts, as I understand them, are these:

"The Chicago, Peoria & St. Louis is a railroad whose abandonment we have authorized. It has since been operated by the receiver, at great burden upon the bondholders, pending its sale, in sections, to such carriers as might have use for and be willing to operate portions of the line. The bondholders have shown solicitude, at considerable cost to themselves, for the public served by the line. Their attitude has been characterized by the reverse of the quality mentioned above.

"In pursuance of this plan the Edison has driven a hard bargain with the bondholders of the Chicago, Peoria & St. Louis, agreeing to buy the Springfield-Pekin line for a price which the majority say 'apparently does not exceed scrap value.'"

He further said:

"It is obvious that the Edison does not propose to use the Shylock bargain which it has been able to drive with the distressed bondholders of the Chicago, Peoria & St. Louis and landholders along the line as a means of reducing the cost of electricity in Chicago. Instead it proposes to use it as a means of reaping a most handsome side profit in an investment in the securities of a common carrier."

The Chicago, Peoria & St. Louis was authorized by the Interstate Commerce Commission to be abandoned. It was sold in parcels in November, 1924, but none of it has been abandoned. The new owners of the portion under discussion in this docket propose to rehabilitate the line they have acquired and possibly to electrify it.

TENNESSEE & NORTH CAROLINA.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes to be $431,322 for the property owned and used as of 1916.

WELLINGTON & POWELLSVILLE.—*Foreclosure Sale.*—William C. Everett, of Norfolk and Portsmouth, was the high bidder at the sale on February 16, of the Wellington and Powellsville, a narrow gage line from Ahoskie, N. C., to Windsor, 22 miles distant. The purchase price was $55,750.

The Wellington & Powellsville has been in receivership since September 27, 1923.

YALE SHORT LINE.—*Authorized to Operate Line.*—The Interstate Commerce Commission has authorized this company to acquire and operate a line from Casey, Ill., to Jasper, 12.5 miles, formerly a part of the Sidell & Olney, which was sold as junk in 1919 but this portion of which was taken over by local citizens interested in continuing rail service in this territory.

Dividends Declared

Chestnut Hill.—$75, quarterly, payable March 4 to holders of record February 21.

Philadelphia, Germantown & Norristown.—$1.50, quarterly, payable March 4 to holders of record February 21.

Pittsburgh, Youngstown & Ashtabula.—Preferred, 1¾ per cent, quarterly, payable March 1 to holders of record February 20.

Average Price of Stocks and Bonds

	Feb. 23	Last Week	Last Year
Average price of 20 representative railway stocks	93.24	92.99	82.84
Average price of 20 representative railway bonds	95.50	95.12	90.81

Railway Officers

Executive

George E. Evans, vice-president in charge of operation of the Louisville & Nashville, with headquarters at Louisville, Ky., has been elected executive vice-president, with the same headquarters, a newly created position. Mr. Evans' election as executive vice-president is taken to indicate that a president will not be elected at this time to take the place of the late W. L. Mapother.

Financial, Legal and Accounting

J. L. McCartney has been appointed auditor of disbursements of the Florida East Coast, and **G. G. Lee** has been appointed auditor of passenger accounts. The office of assistant auditor in charge of general accounts and disbursements and the office of assistant auditor in charge of passenger accounts have been abolished.

Operating

S. R. Kennedy, assistant superintendent on the St. Louis-San Francisco, with headquarters at Chaffee, Mo., has been promoted to acting superintendent of the Central division, with headquarters at Ft. Smith, Ark., succeeding **C. H. Baltzell,** temporarily assigned to other duties.

Fred H. Shaffer, who has been promoted to general manager of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., was born at Mattoon, Ill., on September 30, 1882. He entered railway service as an operator on the Cleveland, Cincinnati, Chicago & St. Louis, later being promoted to train dispatcher and chief dispatcher. In 1906 Mr. Shaffer was employed as a train dispatcher on the Atchison, Topeka & Santa Fe where he was later promoted to trainmaster. He was employed as a train dispatcher on the Ft. Worth & Denver City in 1911, and held that position until 1918, when he entered the service of the St. Louis-San Francisco as transportation clerk. Shortly afterward he was promoted to transportation inspector and in two years more, was promoted to superintendent of the Eastern division. Mr. Shaffer was promoted to assistant general manager in February, 1925, and held that position until his recent promotion to general manager.

F. H. Shaffer

J. D. Beltz, superintendent of the Pittsburgh division of the Baltimore & Ohio, with headquarters at Pittsburgh, Pa., has been transferred in the same capacity to the Connellsville division, with headquarters at Connellsville, Pa., succeeding **G. W. Martin,** resigned. **M. S. Kopp,** superintendent of the Monongah division, with headquarters at Grafton, W. Va., has been transferred to the Pittsburgh division, succeeding Mr. Beltz. **T. K. Faherty,** assistant superintendent of the Monongah division, has been promoted to superintendent of that division, with headquarters at Grafton, W. Va., succeeding Mr. Kopp. Mr. Faherty was born on May 20, 1877, at Harper's Ferry, W. Va., and was educated in the public schools there. In 1897 he became a fireman on the Baltimore & Ohio, and, in 1900, became a locomotive engineer. He was promoted to fuel inspector in 1908 and road foreman of engines in 1910. In 1916 he was advanced to supervisor of locomotive operation, and, in 1917 to assistant superintendent at Keyser, W. Va. He was later transferred to Grafton, and at various times has been stationed on the Philadelphia, Baltimore, Cumberland, Wheeling, New Castle and Monongah divisions.

Traffic

C. P. Shumway has been appointed general agent, freight department of the New York Central Lines, with headquarters at Milwaukee, Wis., succeeding **R. J. Nicoud,** retired.

D. R. Crowley has been appointed division freight agent of the Nickel Plate district and the Lake Erie & Western district of the New York, Chicago & St. Louis, with headquarters at Ft. Wayne, Ind., succeeding J. H. Day, promoted.

H. V. Wilmot, district passenger agent of the Northern Pacific, with headquarters at Chicago, has been placed in charge of the organized business department, with headquarters at St. Paul, Minn. **G. W. Rodine** has been appointed assistant general agent, with headquarters at Chicago.

Engineering, Maintenance of Way and Signaling

W. G. Tinney has been appointed engineer maintenance of way of the Denver & Salt Lake, with jurisdiction over all maintenance of way matters.

Obituary

J. H. Curry, division superintendent of the Lehigh Valley, with headquarters at Wilkes-Barre, Pa., died suddenly on February 19.

R. A. Donaldson, formerly assistant general passenger agent of the Southern Pacific, died recently at San Francisco at the age of 85 years.

S. D. Reeve, formerly superintendent of terminals of the Chicago & Alton, with headquarters at Chicago, who retired from active service in April, 1911, died at Los Angeles, Cal., on February 16.

Clark R. Fickes, resident engineer of the Florida East Coast, with headquarters at South Jacksonville, Fla., died suddenly in that city on February 8. He had been in ill health for some time although his illness had not been considered serious. Mr. Fickes was 53 years old at the time of his death. He had long specialized on heavy railroad bridge construction involving difficult foundations. He was supervising the erection of the recently completed St. Johns river bridge at South Jacksonville just prior to his death. Previously he had served as resident engineer of the Chicago, Burlington & Quincy, in charge of the construction of the bridge over the Ohio river at Metropolis, Ill., and in a similar capacity on the St. Louis Southwestern in charge of the construction of a bridge over the Red river near Shreveport, La. During the war he served as a major in the Engineering Corps of the American Expeditionary Forces.

Benoit Briard, purchasing agent of the Chicago Great Western, with headquarters at Chicago, died in that city on February 11 after an operation for appendicitis. Mr. Briard was born on February 9, 1865, in St. Louis, Mo., and entered railway service in June, 1879, as a messenger in the office of the local freight agent of the Chicago & Alton at Chicago. In December, 1879, he took up the study of telegraphy, returning later to the Chicago & Alton as telegraph operator and clerk in the local freight office at Chicago. He was transferred to the general freight department in 1880 and in April, 1882, was transferred to the purchasing department. Mr. Briard was promoted to stationer in January, 1894, later being promoted to chief clerk and assistant to the purchasing agent. He was later promoted to chief stationer of the Alton, the Toledo, St. Louis & Western, the Minneapolis & St. Louis and the Iowa Central. In November, 1909, Mr. Briard was appointed purchasing agent of the Chicago Great Western and he held that position until his death.